

SOUTHERN TEXTILE BULLETIN

VOL. III

CHARLOTTE, N. C., JULY 11, 1912

NUMBER 19

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of
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a Specialty

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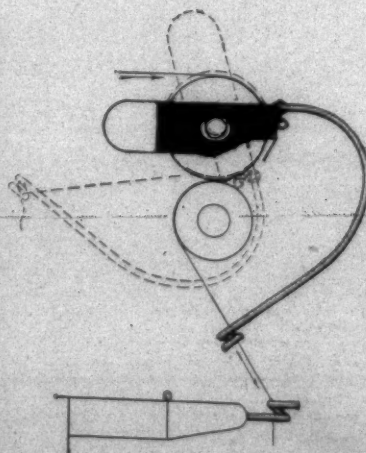
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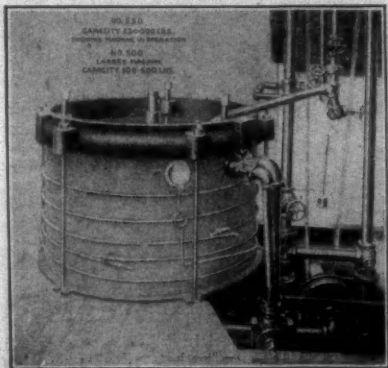
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SOUTHERN AGENT, O. A. ROBBINS, - - CHARLOTTE, N. C.

SOUTHERN TEXTILE BULLETIN

VOL. 3

CHARLOTTE, N. C., JULY 11, 1912

NUMBER 19

Fine and Fancy Weaving

W. A. Black before Southern Textile Association

The subject of fine and fancy weaving in the South is one of much interest just now, and especially among the young men, there having been many of our mills changed over from coarse to fine and fancy work in the last few years. There is now being manufactured in and around the city of Greenville, S. C., damasks, lenos, Indian lawns and light dimities that, I am told, compare favorably with any goods, of its kind, made in the United States today; and while fancy weaving, with us, is in its infancy, its progress depends on us, as men, who have direct charge of the machinery in applying ourselves close to duty and in the training of the help to use the uttermost care with the roving and yarn at each and every process.

In the manufacturing of fine and fancy cloths, there is nothing more important than a good clean, even round yarn, breaking at least up to standard, carefully spooled and warped with as few knots and slubs as possible. In preparing warp yarn for the slasher, section beams should be made up in even numbers; that is 4-6, or eight, never using 5, 7 or 9, as they do not split well on the slasher. For instance: suppose you make a set of warps on seven beams of 400 ends each—2,800 ends. The first and large lease rod is or should be in the centre of the yarn, but in this case, we would have 1,600 ends on one side of the rod while on the other side, we would have only 1,200 ends, which will cause breaking of the yarn and many loose ends in the warps.

SLASHING.

The slashing of warp yarn for the weave room is something that demands our careful attention, for it is here that we can spoil both the feel and appearance of the goods and save the weave room from making many seconds; for I believe that at least 20 per cent of the seconds can be traced either directly or indirectly to the slasher room. Slashing to the weave room is about the same thing as carding is to the spinning room; bad carding means bad spinning, lots of waste and discontented help; while bad slashing does not only mean bad running work in the weave room but a low production, lots of waste, a high per cent of seconds and usually a high cost.

Among the defects in the process of slashing are the following: Poorly cooked starch; imperfect drying, by which the ends stick to one another on the beam; streaks of size on the yarn, caused by a defective roller cloth; rust spots from size kettle or pipes. If starch is not properly cooked, it will not penetrate the yarn without a finish which does not only affect the weaving, but mars the appearance of the cloth.

The secret of preparing size lies in the boiling. Every granule of the starch must be open or else the full sizing value is not secured. In my opinion, most of us use too heavy slasher cloth. As some of us know that there are mills that have changed from coarse to fine work in the last few years, but have not changed their slasher cloth, which is usually a 16 or 18 ounce. Experience has taught me that a 16 ounce does not work well on anything above thirties, and I prefer using a 14 ounce for thirties, as I think it cleans the yarn better. A good way to tell what your roller cloth is doing is to stand on the shaded side of the machine and look around across the top of the small cylinder toward the light, and if you see size on the yarn, either in streaks or in spots, it indicates that your roller cloth is not doing its duty and should be attended to at once.

A slasher cloth should be trimmed by a straight edge, then carded off so as to give it a taper in order to avoid streaks of hard size on the yarns every revolution of the roller, which, in process of weaving, will crack and scale off, falling under the loom.

HANDLING OF THE WARPS.

One of the little things I fear we overlook, to a certain extent, is the handling of the warps between the slasher and weave room. There is a custom among loom fixers and helpers of using a truck with shuttle points in them to keep the warp from slipping on the truck, the points burying them-

selves into the warp, straining the yarns and often cutting it, though it may not be noticed until the weaver has woven some five or ten yards and then he doesn't know the cause of the loose ends. The best truck for hauling warps that I know of is this the old style four wheel truck with leather swings, where there is no metal or wood that comes in contact with the yarn.

LOOM FIXING.

I doubt seriously if there is any kind of trade or profession that is more abused than that of loom fixing; and yet, he is one of the most important hands in the room, for on him, more than any one else, depends the quality and quantity of the production. He should be a fair mechanic, as well as a good weaver, and thoroughly understand how all parts of the loom is assembled. A good loom fixer will see to it that when a warp runs out that the loom is thoroughly cleaned, with all oil holes picked out and all parts freshly oiled before he puts on a new warp; and if on gauze or leno, care should be taken to inspect every part to see that it is set up properly, and that there are no worn and loose parts that are liable to give way.

In putting a warp on the loom, too much stress cannot be put on the setting and regulating of the harness or shed. No matter what kind of goods you are on, for it is here, to a very large extent, depends the quality of the product. In regulating the shed, the fixer must be governed by the kind of weave he is dealing with, for obvious reasons: on some dobby weaves, we want as large a shed as we can get, while on lenos we want as small as it is possible to run with, on account of the additional strain put on the yarn by the crossing of the ends, which takes place between the reed and harness.

SELVAGE.

There is nothing that affects the appearance of a finished piece of goods more than the selvage. A cut of cloth may be woven perfectly and have a rough or frizzled selvage and it will spoil the whole piece.

There are several things that will cause a bad selvage. One is that the harness or selvage motion is not properly timed; another is caused by the temple not being properly set to the fell of the cloth, and when the lay is brought forward in beating up the filling, considerable strain is brought to bear upon the selvage, causing them to break.

SKIPPING.

Probably one of the most frequent troubles in fancy weaving is that of shipping or as some of us call it, overshots. This is the failure of any one harness to lift when it should, and therefore the filling floats over the ends that are drawn in that harness where they should be under. This fault may be caused in many ways: in some cases the cylinder may have slipped out of position; in which case some of the pegs may not lift their fingers. A peg may get bent slightly to one side and in such a manner that when the bar of the chain in which it is placed comes under the finger that it should, will pass between it and the adjacent finger. Again, this may be caused by a short peg in the chain, which will raise the finger but not quite enough for the hook to catch the knife. If from any cause one of the hooks should become bent, its action will be very uncertain. In any case when skipping occurs, the ends should be traced from the cloth to the harness in which the ends are drawn and by carefully watching the fingers and hooks you can usually locate the trouble.

OVERSEER.

An overseer of a fancy weave room should be a designer, or at least have some knowledge of its principles. Otherwise, he will always be at a disadvantage, not only among his fixers, but with his weavers. He should have his cloth inspected by the second hand or some competent person at least once a day on the loom, noting any kinky filling, miss draws or anything that might effect the quality of the cloth.

Tariff Board Report

APPENDIX B.

Detailed Costs of Cotton Cloth.

Following are the detailed costs of each of the Tariff Board samples giving the cost for each mill for which the costs were calculated. The construction of the cloth is clearly described in each case, and the table is followed by a tabular presentation of the character of the weave and figuring of each sample, together with the kind of loom on which it is made and the number of harnesses used. This latter tabular presentation is merely the application to the samples of the detailed presentation of weaves and figures for all ordinary classes of goods presented in the glossary.

Table 212.—Actual manufacturing cost of 100 samples (showing mills in which costs were obtained).

Sample No. 1 Cotton Duck.		Sample No. 2 Cotton Duck.	
Grey Construction		Grey Construction	
Width—Yards (per pound)	29½ in.—1.60	Width—Yards (per pound)	29½ in.—2.00
Warp threads x filling threads (per inch)	78 x 27	Warp threads x filling threads (per inch)	78 x 7
Yarns: Warp—Filling	7—5.2	Yarns: Warp—Filling	8½—7
	Cost per pound of grey		Cost per pound of grey
	Per cent of total cost		Per cent of total cost
Labor cost (per pound)	\$0.008324 4.49	Labor cost (per pound)	\$0.010732 5.75
Works expense and fixed charges (per pound)	.007772 4.49	Works exp. and fixed chrgs (per lb)	.009583 5.05
Cotton cost (per pound)	.168588 90.89	Cotton cost (per pound)	.168588 88.76
Depreciation cost (per pound)	.000803 .43	Depreciation cost (per pound)	.001027 .54
Total cost per pound of cloth	.185487 100.00	Total cost per pound of cloth	.189930 100.00
Cost per pound of cloth (grey)	.115929	Cost per yard of cloth (grey)	.094965

Sample No. 3 Osnaburg.

Grey Construction		Sample No. 4 Heavy Sheetting.	
Width—Yards (per pound)	36 in.—2.50	Width—Yards (per pound)	30 in.—3.75
Warp threads x filling threads (per inch)	32 x 30	Warp threads x filling threads (per inch)	48 x 75
Yarns: Warp—Filling	8.5—6	Yarns: Warp—Filling	12—17.3
	Cost per pound of grey		Cost per pound of grey
	Per cent of total cost		Per cent of total cost
Labor cost (per pound)	\$0.029481 14.59	Labor cost (per pound)	\$0.024475 11.37
Works exp. and fixed chrgs (per lb)	.018608 9.21	Works exp. and fixed chrgs (per lb)	.020112 9.34
Cotton cost (per pound)	.153823 76.13	Cotton cost (per pound)	.168588 78.27
Depreciation cost (per pound)	.000138 .07	Depreciation cost (per pound)	.002207 1.02
Total cost per pound of cloth	.202050 100.00	Total cost per pound of cloth	.215392 100.00
Cost per yard of cloth (grey)	.080820	Cost per yard of cloth (grey)	.057438

Sample No. 8 Canton Flannel.

Grey construction:		Sample No. 9 Cheesecloth or Bunting.	
Width—Yards (per pound)	30 in.—2.50	Width—Yards (per pound)	25 in.—14.59
Warp thrs x fill thrs (per in.)	68x47	Warp thrs x fill thrs (per in.)	40x36
Yarns: Warp—Filling	12½—10	Yarns: Warp—Filling	28—37
	Cost per pound of grey		Cost per pound of grey
	Per cent of total cost		Per cent of total cost
Labor cost (per pound)	\$0.023105 11.28	Labor cost (per pound)	\$0.067647 22.07
Works exp. and fix. charges (per lb)	.019475 9.51	Works exp. and fix. charges (per lb)	.051801 16.90
Cotton cost (per pound)	.159658 77.97	Cotton cost (per pound)	.175394 57.23
Depreciation cost (per pound)	.002533 1.24	Depreciation cost (per pound)	.011648 3.80
Total cost per pound of cloth	.204771 100.00	Total cost per pound of cloth	.306490 100.00
Cost per yard of cloth (grey)	.081908	Cost per yard of cloth (grey)	.021007

Sample No. 13 Shirting.

Grey Construction:		Sample No. 16 English Long Cloth.	
Width—Yards (per pound)	40 in.—3.20	Width—Yards (per pound)	39 in.—5.00
Warp thrs x fill'g thrs (per in.)	83 x 92	Warp thrs x fill'g thrs (per in.)	80 x 80
Yarns: Warp—Filling	28—33	Yarns: Warp—Filling	34—51
	Cost per pound of grey		Cost per pound of grey
	P. et of total cost		P. et of total cost
Labor cost (per pound)	\$0.078389 24.33	Labor cost (per pound)	\$0.084464 22.32
Works exp. and fix. chrgs (per lb)	.056288 17.47	Works exp. and fix. chrgs (per lb)	.054535 14.41
Cotton cost (per pound)	.185063 57.45	Cotton cost (per pound)	.220678 58.33
Depreciation cost (per pound)	.002422 .75	Depreciation cost (per pound)	.018700 4.94
Total cost per pound of cloth	.322162 100.00	Total cost per pound of cloth	.378377 100.00
Cost per yard of cloth (grey)	.100676	Cost per yard of cloth (grey)	.075675

Sample No. 17 Nainsook.

Grey Construction:		Sample No. 17 Nainsook.	
Width—Yards (per pound)	33 in.—8.50	Width—Yards (per pound)	33 in.—8.50
Warp thrs x fill'g thrs (per in.)	76 x 80	Warp thrs x fill'g thrs (per in.)	76 x 80
Yarns: Warp—Filling	55—60	Yarns: Warp—Filling	55—60
	Cost per pound of grey		Cost per pound of grey
	P. et of total cost		P. et of total cost
Labor cost (per pound)	\$0.091392 20.56	Labor cost (per pound)	\$0.091392 20.56
Works exp. and fix. chrgs (per lb)	.082043 18.45	Works exp. and fix. chrgs (per lb)	.082043 18.45
Cotton cost (per pound)	.249968 56.22	Cotton cost (per pound)	.249968 56.22
Depreciation cost (per pound)	.021206 4.77	Depreciation cost (per pound)	.021206 4.77
Total cost per pound of cloth	.444609 100.00	Total cost per pound of cloth	.444609 100.00
Cost per yard of cloth (grey)	.052307	Cost per yard of cloth (grey)	.052307

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Width of Card.

The chief argument seems to be centered about the 40 and 45 inch card. There is, however, a point which may be urged in favor of the 40-inch cards, and that is, that there are more 40-inch cards in operation at the present time than any other width, which, to a certain extent, proves that the advantages of such a width card are recognized by most mill men. The chief arguments in favor of the 45-inch cards are that the carding surface is increased, which, of course, increases the production, and that this increased production is obtained from a smaller floor space. Again, it is claimed that if the same weight card sliver is maintained on the 45-inch cards as on the 40-inch card, a cleaner sliver is produced, because the sheet of lap can be made correspondingly tighter than that of the difference in width. The above is true, because the lighter the sheet of lap and wider the card, the better opportunity is given the licker teeth to strike out the foreign matter from the sheet. This must be admitted, as it is agreed by all practical carders to a man that the smaller the tufts of cotton the more easily the foreign matter can be extracted.

Another point that is claimed for the wide card is that a stripper can take care of as many cards, which, of course, reduces the cost.

The claim is made by many writers that the lap on the wide card is too heavy is a poor argument

against this card, because we find that where the 40-inch card is used, most strippers carry two laps at one time, which proves that the laps on the wide cards can be carried easily by any ordinary stripper. Again, some claim that the tops or flats, owing to the increased length, will deflect, and that a true setting of the flats is impossible at every point from the cylinder. This is another poor argument, because the tops on the wide cards could be constructed in proportion by strengthening their cross-section by the builders, if this was found to be true. We have recently made an investigation in mills where both the 40 and 45 inch cards are used, and we are told that if there is any more deflection of the tops of the 45-inch cards it is too slight to be noticed.

There is only one way to solve a problem like the above in order to arrive at the right conclusion, and that is to take every item apart and examine it separately. Just to say that certain setting gives good results counts for little, unless the action that such a setting will give the fibres can be examined. This same can be said of the information received from carders who are using both the 40 and 45-inch cards. You may find one carder who is using both types who will tell you that the 45-inch card is superior to the 40-inch, while, on the other hand, you will find another carder using both types who admits all the advantages we have pointed out above, but at the same time will

claim that the 45-inch card gives a great deal more trouble, and for this reason favors the 40-inch card. So, as we have stated above, the variation of opinion pertaining to the different widths of cards is precisely the same as the settings. After carefully examining every item, the formula which follows is given. Conceding to the 45-inch card the advantages already pointed out, it must be admitted that the carding working area is increased. So, then, the efficiency of the 45-inch card is one-eighth greater than the 40-inch card. Compare the difference in the two cards with that of the roll speed on a spinning frame; that is, the quality of the stock governs the roll speed on all frames where twist is inserted, and the same can be said of the difference in the width of cards—the stock.

Run one-inch cotton or less through a 45-inch card, and you will have trouble from the web continually sagging, simply because the fibres are too short to aid one another from the extreme ends of the doffer comb to the trumpet, and so they separate at this point and cause gradually the separation of other fibres more central in the web, with the result that the web is continually breaking. So this is why the 40-inch card is adopted; because it can run all kinds of stock to better advantage.

We have, of course, a certain amount of sagging on the 40-inch cards, especially in the summer months, but the sagging is not great enough to destroy the benefit of the

increased production over the 38-inch card the year around.

On the other hand, when the 45-inch card is used with short stock the trouble and loss of waste destroy certain advantages we have pointed out. So, then, the 45-inch card should be used in mills where long stock is used—fine goods mills. Of course, it may be pointed out that a longer draft is necessary to reduce such a wide lap to a light sliver, such as required for a fine goods mill, but long drafts are necessary when long stock is used, in order to strengthen out the fibres properly, a feature found in England and France in their principle of carding.—Canadian Textile Journal.

Editor's Circulation.

An editor was dying they thought. His friends—the few he had—were around his bed weeping. Not so much about his dying, but how his family was to live. The doctor tiptoed in. He felt his pulse. He put his head to the editor's heart—or where it should be. The doctor drew a wise, sympathetic breath, and in a low, professional tone, said: "Poor man. He will soon be dead. His circulation is all gone." The dying editor jumped up and yelled: "You are a liar. We have the largest circulation in the county." The doctor took what is called "pellagra" and has not been heard of since.—Ex.

The Annual Cone Picnic

White Oak Park, Greensboro, N. C., was the scene of the eighth annual Independence Day picnic of the Proximity, Revolution and White Oak mills tended the employees and their families by the Cone family, of the owners of the mills. The affair proved as great or a greater success this year than ever before.

The number that enjoyed the bounteous spread provided by the mill management was estimated at between 8,000 and 10,000. The big tent under which the dinner was served was besieged from every side and time after time the hungry crowds would push to the front to load up and again retire. For the mothers and their infants in arms a special tent was provided at a comfortable distance from the main tent and there they were provided with all the good things to eat and cozy places to rest.

A special table near the main was placed for Caesar Cone and several invited friends and there the same rations as were served the others were served him and his guests. Gen. Julian S. Carr of Durham was one of the guests of Mr. Cone and bespoke his keen pleasure and satisfaction.

There were several pleasing features at the mill aside from the dinner and the prize contests. One was a double wedding. The speaker's stand was filled by 11 o'clock and the program of speech-making was ready when, immediately following the invocation, two couples were wedded in the presence of the great gathering.

The events of the day were ushered in by the introduction of Caesar Cone, president of the Proximity Manufacturing Company. A. C.

Holt was master of ceremonies. Mr. Cone said that just one year ago he was awfully homesick; that he was far, far away—in a strange land—in Belgium at Ostend—and that he was thinking of his home land; of the picnic at White Oak; of his friends here and of Old Glory. "I went all over the place," he said, "trying to find a flag—an emblem of the land of the free and the home of the brave. Finally I found one, a little love affair but it did look good. I gave it to my little boy. We stuck it up in the sand on the beach and after a while a half-mile down we saw another pile of land and on it was a little flag—the Stars and Stripes. It made me feel mighty glad but awfully homesick."

Mr. Cone referring to industrial conditions said: "Things are in better shape than they were last year. Then we had to start on short time. Then the demand would not begin to take up the small production turned out. Conditions now are entirely different. There is a fair demand for goods, and while the world is a little quiet at the present moment I hope the market will continue full." Mr. Cone only slightly touched politics. He referred to the fact that both great parties had nominated their candidates for President. "You folks are good enough men to make a choice," he said. "You needn't fear that either Mr. Taft or Mr. Wilson will do any harm. This country is going to be safe no matter which one is elected."

Following Mr. Cone's address and a short talk by Mr. E. Sternberger, president of the Revolution mills, \$325 in prizes were announced given in each of the mill village to people keeping the best premises.

Picnic at LaGrange Mills.

Cotton Condition and Acreage Short.

The management of the Unity, Elm City and Unity Spinning Mills, of LaGrange, Ga., gave their employees a holiday and a big barbecue at Elm City Park on July 4th. In addition to the employees of the mills and their families there were a number of guests from the city and the surrounding country, and all voted it one of the most enjoyable occasions of the kind that they had ever attended. About 2,000 were present.

The weather was fine and the dinner was excellent.

The young folks enjoyed themselves with various games and amusements during the day. An old fashioned square dance was in continuous progress in the pavilion and in the afternoon there was a match game of baseball between the boys of the Elm City team and the Sword and Shield.

The employees of the mills were warm in their praises of Messrs. Truitt, Callaway, Dallis, the superintendents, Messrs. Turner, Grimes and Austin, who with the office men and overseers of departments took such effective interest in making the day enjoyable to every one.

Washington, July 3.—The Department of Agriculture's preliminary estimate of the acreage planted to cotton in the United States this year, which by act of Congress was deferred from June to this month and hereafter will be announced annually in July, was made public at noon today and shows the area planted to be 34,097,000 acres, compared with 33,681,000 acres indicated by the Bureau of Statistics' revised estimate of last year's planted area.

The condition of the growing crop on June 25 was 80.4 per cent of a normal condition, as compared with 88.2 per cent June 25 last year and 80.7 per cent the average condition for the past ten years on June 25.

Details of the area planted, by States follow:

State.	1911	1912
Virginia	44,000	43,000
North Carolina	1,657,000	1,558,000
South Carolina	2,800,000	2,604,000
Georgia	5,579,000	5,024,000
Florida	318,000	283,000
Alabama	4,043,000	3,720,000
Mississippi	3,426,000	3,046,000
Louisiana	1,118,000	1,062,000
Texas	11,150,000	10,927,000
Arkansas	2,470,000	2,198,000

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All kinds Sizing and Finishing Materials, Potato
Starch, Dextrine, etc.

Thursday July 11, 1912.

SOUTHERN TEXTILE BULLETIN

Tennessee	850,000	799,000
Missouri	132,000	110,000
Oklahoma	3,081,000	2,711,000
California	13,000	12,000

Details of the condition on June 25, by States, with comparisons, follow:

State.	1912.	Ten-year 1911. average
Virginia	.87	.98 .84
North Carolina	.83	.89 .82
South Carolina	.79	.84 .81
Georgia	.72	.94 .83
Florida	.76	.96 .87
Alabama	.76	.93 .80
Mississippi	.74	.87 .80
Louisiana	.74	.89 .79
Texas	.89	.85 .80
Arkansas	.77	.89 .81
Tennessee	.76	.87 .84
Missouri	.75	.90 .84
Oklahoma	.82	.87 .81
California	.98	1.00 .77

Textile Manufacturing in Georgia.

A recent bulletin of the Census Department states that the combined value of the textile manufactures, including cotton goods, hosiery and knit goods, and woolen worsted goods, amounted to \$52,141,000 or 25.7 per cent of the total value of all manufactured products of the state in 1909. The textile industries of Georgia are confined almost entirely to the cotton goods branch, which was first in importance among the individual industries of the state, with a value of products in 1909 almost double that of the lumber and timber industry, which ranked next. For a number of years Georgia has produced next to the largest cotton crop of any state, but it ranks only fifth among the states in the value of its cotton manufactures. It is interesting to note that while the percentage of increase in value of products from 1899 to 1904 was greater than that in value added by manufacture, from 1904 to 1909 the increase in the value added by manufacture was the greater. This variation was due partly to the rise in the price of raw cotton during the earlier five-year period. Only one establishment included under this classification was reported as primarily engaged in the manufacture of cotton small wares.

Closely allied to the cotton industry in this state is the manufacture of hosiery and knit goods, which are made almost entirely of cotton materials. Although the value of products of this industry is small when compared with that of the cotton goods industry in 1909, it increased 89 per cent from 1899 to 1904 and 39 per cent from 1904 to 1909.

Industrial Power in Cotton Belt.

"Counting from the Potomac south to the last of the streams that flow into the Atlantic Ocean, there are fully a score of these that have a length of from 100 to 300 miles between the mountains and the sea. This feature of the map is the foundation of the new industrial era of the South Atlantic States.

"In point of development the cotton textile industries of North and South Carolina comprises the South's most noteworthy manufac-

turing unit. And the center and source of this organization is the hydro-electric power which springs from these upland streams and is distributed over an area of several hundred miles. There are 300 miles of 100,000 volt pole and tower lines in operation driving the largest cotton factories in the country, and driving some of the biggest of them at a power cost low enough to pay them to let their own individual power plant lie idle.

"This utilization of power is to the southeastern cotton belt what the coal deposits of Pennsylvania, West Virginia, or the central West are to their respective industries, except that the current is cheaper than the coal. But for this new factor of power it would have been impossible for the past 15 years to have reached a development in which within a hundred miles of Charlotte there are nearly 500 cotton mills, representing a capital of \$175,000,000. Within a radius of 60 miles of this point the engineering estimate is that there are 1,000,000 electric horse power, of which above 200,000 horsepower is now developed.

"Besides the industrial revolution which this power supply has brought about, this portion of the country is on the eve of an equally significant development, in the form of interurban traction lines. The entire Piedmont in the Carolinas is studded with towns of enough commercial importance to command the attention of traveling salesmen. In conversation with the manager of the interurban lines radiating from Charlotte it was stated that the making of two towns a day was formerly considered good work. But interurbans give an hourly schedule and enable them to do three or four times the business done under the older conditions. That's but an instance, though a significant one.

"Another result is the better distribution of this labor supply. Still another is the ability of rural and town toilers to break the monotony of their conditions by travel and communication at more frequent intervals, which makes it strongly for the comfort and contentment of the people in general.

"Yet these are only beginning. There are towns in this region of power supply whose annual production of furniture places them second to Grand Rapids, Mich., in the value of output. Other places are numerous in which this and other lines of industry flourish. That attention from the investment standpoint is being directed to the region is shown by the fact that every few weeks marks the advent of Northern or Western capitalists, to take over some particular traction property as part of a new public service or hydro-electric project."—Wall Street Journal.

Not Very.

"I so admire a man who, like your husband, always dresses so quietly," said Mrs. Smith to Mrs. Jones. "Oh, no, he doesn't," said Mrs. Jones. "You ought to hear him when he loses a collar-button."—Ex.

OUR SPINNING RINGS SINGLE OR DOUBLE FLANGE
START EASIEST, RUN SMOOTHEST, WEAR LONGEST
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If you contemplate establishing an industry, we would be pleased to give further and full information regarding location along the Southern Railway System.

M. V. RICHARDS

Land and Industrial Agent Southern Railway

Room J

WASHINGTON, D. C.

Willows for Cotton and Cotton Waste

THESE machines were originally identical with the fore-runners of our modern cotton openers, and some types not only show still a great similarity, but actually are almost the same in principle, as we shall see further on. At the present moment, however the "willow" has become a machine which is chiefly used for waste of all kinds, scutcher droppings, fly, strips, etc., and accordingly it has assumed special features which it is our intention to describe.

Taking first the ordinary willow for cotton waste, we find that this type is fed in various ways, whilst it delivers the material almost invariably by means of a short cross-lattice placed near the top of the machine over the feed end. This has led to the machine being frequently called the "overhead willow." The proper name for this machine is, however, "self-acting grid and delivery willow"—i. e., a willow with self-acting feed and grid motions, and with self-acting delivery motions.

This machine has a fairly large cylinder, which is mounted on a substantial shaft. The movement is in such a direction that the material gets a downward blow, which is somewhat different from some machines, including willows for pure cotton. The cylinder ends are mounted on the strong centre shaft, and they have a series of pockets at their ends which take strong birch lags. To secure these birch lags well they are protected by an iron bar on the nut side. There are six birch lags in all, each of which has twelve teeth in a row. These teeth are oval-shaped, and they are set alternately so as to present the greatest possible number of points of attack on the material. To increase the intensity of working, the teeth are set so as to point in alternate directions, Fig. 1, the revolutions being in the direction of the arrow. This has two advantages. Firstly, the material is struck in such a way as to be flung somewhat sideways, and thus ensure its being constantly redistributed over the whole surface of the machine; secondly, the teeth may be set in the other direction after they have become worn, which takes place after a few years' work. Fig. 2 shows a

new tooth; Fig. 3, one which has become worn. It is clear that teeth with rounded noses cannot do the work as effectually as teeth with sharp edges, and a sharp edge is practically obtained again by turning the tooth. In Fig. 3 A shows the blunt edge, but B is an edge which may still do very good work. Each tooth projects about 4 inches above the sheet-iron plate covering the body of the cylinder, and the quality of the material of these teeth is also important. A good tooth is a cast-iron tooth with wrought-iron shank cast in. This shank is screwed, and there is obviously no better method of fastening a cast-iron tooth possible.

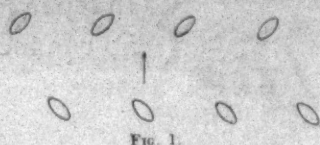


FIG. 1.

The cylinder sides are made up of plates, one semi-circular plate for each cylinder half. To prevent trouble the edges of these plates are protected by means of strong-plate strips, which are screwed on.

The cover of the willow is formed by a sheet-iron plate, suitably curved, and containing three strong cast-iron bars, each of which contains a row of teeth against which the material is flung during the cleaning process. These teeth must not project between the teeth in the cylinder, but they are set so as to prevent any chance of curling the material.

To obtain good cleaning and a high production the cylinder must run at a fairly high speed; hence there would be a chance of the cylinder bursting if it were not well kept together. This may be done in two ways—by means of wrought-iron hoops and by means of cast-iron rings. It is claimed that the strong cast-iron rings have an advantage over the wrought-iron hoops, inasmuch as the hooping is said to be more liable to burst. In a willow of 56 inches cylinder width four extra-strong cast-iron rings would be used. The cylinder bearings should have ring lubrication, which is much more efficient than the old style of lubrication.

The framing in a modern willow

is of course invariably cast iron. To prevent air currents interfering with the work of the machine, the frame sides are well closed up by means of sheet-iron plates fitting close up to the main shaft of the cylinder. Besides the prevention of awkward air currents, this has the advantage of keeping the dust inside the machine.

The grid is made of hardened and tempered steel bars nowadays, because then a much greater number of cleaning edges is possible, whilst maintaining the same spacing for dirt to fall through. These steel bars may be of various thicknesses, very fine bars being used for fine pitch; but for medium and coarse



FIG. 2.

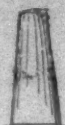


FIG. 3.

pitch the same thickness of bars is used. The fine pitch is used for very low material, to prevent excessive loss of fibre. To keep the bars in their proper places they are fitted into bends or circles which have slots punched in, into which the bars fit. The grid is usually made in two sections, each section containing ordinarily thirty-six bars per inch. An important point is the necessity of having the grids fitted in such a way that they can be taken out in a few minutes and replaced by another grid for other qualities of waste or for the purposes of repairing.

The old way of feeding was by hand, but this is now almost invariably replaced by a special tray and tray motion, the tray being controlled by a steel chain. The inner end of the tray is hinged to the front part of the grid, which in turn is hinged near the bottom of the cylinder. The back part of the grid does not move during the working of the machine. There are two large sheet-iron plates under the grids, which allow the dirt to settle over the conveyer scroll in the middle of the machine. These plates must be arranged so that they can be easily taken out, and for that reason their top edges should also have a beaded edge.

The conveyer itself consists chief-

ly of a scroll of strong sheet steel mounted on a wrought-iron tube. This scroll turns in a steel trough of very strong section, the ends of which are of cast iron. This trough is of one single piece, so as to present as little obstruction as possible to the waste during its transport. The waste is conveyed into a kind of box outside the machine, over which the so-called dirt elevator is fixed in an inclined position. The elevator consists of a strong sail-cloth belt which runs over fluted pulleys without flanges, straight running being ensured by means of suitable tension arrangements. The cotton belt carries a number of steel buckets which are stamped from a single piece. The whole is enclosed in a sheet-steel casing. This elevator is suitably driven, and takes the waste out of the above-mentioned box to convey it into a bag by means of the steel buckets. The bag is hung up on hooks near the top of the elevator.

To aid in cleaning, and to keep the room free of dust, a fan is fixed at the top of the machine, which draws the dust away from under the grids. To regulate the fan draught a slide damper is applied.

As we have mentioned, the clean material is delivered from above by means of a cross lattice. This delivery lattice is a canvas belt running on tin rollers with cast-iron ends, the tin rollers supporting the belt on the whole width. Straight running is ensured by means of tension screws for the belt. It should be noted that a speed above 350 revs. is not to be recommended, as too much waste is made at a higher speed.

The timing motion is a very interesting feature of this machine. The writer is aware that this motion has often been shown, but the illustrations have always been of a rather complicated nature, and it will therefore be worth while to give a plain sketch (Fig. 4) showing only the outline of the various motions without any superfluous matter. To understand the motion thoroughly it must above all be understood that there are two shafts which are driven at a positive speed—i. e., the shaft B and the shaft N, the latter

(Continued on Page 18)

W. H. BIGELOW

AGENTS FOR

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DISCUSSIONS BY PRACTICAL MEN

Twister Travelers.

Editor:

I recently noticed the following list of travelers given for twistors and thought they would be of interest to your readers.

They are for two-ply yarns on ring of 1 3/4 to 2 inch diameter.

30's and 32's require.....7's or 8's
34's and 36's require.....6's or 7's
38's and 40's require.....5's or 6's
42's and 44's require.....4's or 5's
46's and 48's require.....3's or 4's
50's and 52's require.....2's or 3's
54's and 56's require.....1's or 2's
58's and 60's require.....1-0 or 1's
62's and 64's require.....2-0 or 1-0
66's and 68's require.....3-0 or 2-0
70's and 72's require.....7-0 or 3-0
74's and 76's require.....5-0 or 4-0
78's and 80's require.....6-0 or 5-0
82's and 84's require.....7-0 or 6-0
86's and 88's require.....8-0 or 7-0
90's and 92's require.....9-0 or 8-0
94's and 96's require.....10-0 or 9-0
98's and 100's require.....11-0 or 10-0
102's and 104's require.....12-0 or 11-0
106's and 108's require.....13-0 or 12-0
110's and 112's require.....14-0 or 13-0
114's and 116's require.....15-0 or 14-0
118's and 102's require.....16-0 or 15-0

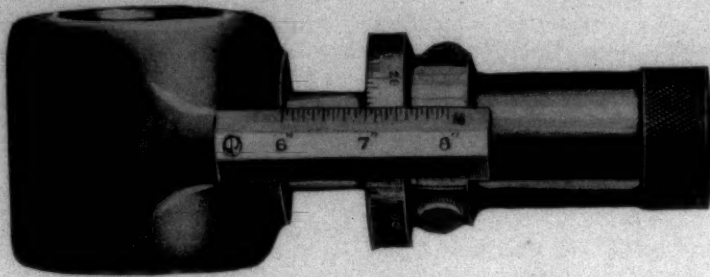
R. S.

Precision Gauge for Setting Rollers.

A recent invention which has been put on the market in England is the "precision gauge" shown here which is designed to eliminate guesswork in the setting of the moving parts of various textile machines. The "precision gauge" is the outcome of difficulties caused by the inaccurate setting of the brackets for supporting the grinding rollers; and stripping, cleaning, and brushing brushes on cards. Exactly what takes place during the actual process of carding is ever a problem of absorbing interest, and whatever the carder's ideas may be as to how deep the stripping and grinding of the filleting should go, there is no doubt whatever that his intentions are often frustrated by inaccurate setting of the stands for the stripping and grinding rollers. The instrument here illustrated affords a means of obviating all guesswork, and provides for the absolutely accurate setting of the brackets even to 1/1000 in. It takes the form of screw free to move in a fixed nut so as to be adapted to the radius of circles between 6 and 8 in. diameter.

The rule is indexed on one edge, and each division represents 1/10 in. diameter; on the other edge each division represents 1/16 in. diameter. The thimble barrel is divided into 100 divisions, each of which represents 1/1000 in. diameter. The rule is also marked 6, 7, and 8 in. diameter. When setting grinding-roller brackets, the diameter of the grinding roller must first be ascertained and the instrument set accordingly, and locked by means of the small screw provided for the purpose. The brackets may then be adjusted at

each end until the instrument just touches the card clothing. When setting the brush brackets the diameter of the brush must first be determined, and the gauge set to correspond, less the depth the brush required to enter the clothing. The makers affirm that by the use of this instrument it is possible to grind cylinders, doffers, and flats absolutely parallel, thus improving



the quality of the carding to a very appreciable extent. Also the life of the card clothing is prolonged, and although we do not need to enlarge upon this at this stage, it very often happens that more is ground off the wires than is required, thus needlessly shortening the life of the clothing. With accurate setting of the grinding roller this would be avoided. By the use of this instrument it is also possible to avoid uneven grinding, with its attendant bad carding results.

Aeroplane Cloth.

Editor:

The problem of obtaining a suitable fabric for aeroplanes is one that is taxing the skill of the best men in the industry, both in this country and abroad.

The following is an interesting extract from a foreign journal relative to the manufacture of aeroplane cloth:

"Leno and other specially woven fabrics have been suggested for aircraft work as being difficult to tear, but they cannot be successfully proofed for use as balloon fabrics, and other means have been adopted

to prevent tearing, or at least to make tearing difficult. With regard to resistance to tearing, if we compare two cloths of the same weight, one being a closely woven cloth made from very fine yarn, and the other an open cloth made from coarse yarn, the latter will be the more difficult to tear, as tearing simply consists of breaking one or two threads at a time.

"The most successful method has been the use of two-ply fabric stuck together with a layer of rubber, one layer having its threads inclined at 45 degrees to the threads of the other layer.

"In making this diagonally doubled fabric (as it is termed), one layer of cloth is made up of small pieces of rhomboidal shape. This is rather a disadvantage, owing to the larger number of joints, which are sometimes a source of weakness.

"It may be noted here that a method of overcoming this defect would be to weave the weft of each ply at an angle less than 90 degrees (about 70 degrees for preference), and then to double two plies together with the wefts of the two cloths arranged to cross. We should then have a cloth with the threads in three directions instead of two, and a tear would always meet with threads inclined to its direction. To design a loom to weave with the weft at 70 degrees to the warp will, I admit, be difficult, but it can be done, and there is every reason to believe that some firm could make a commercial success of it."

Airship.

Names Wanted.

We wish to get a more complete list of the superintendents and overseers. Please clip out this blank and mail it to us with the names at your mill.

..... Superintendent
..... Overseer of Carding
..... Overseer of Spinning
..... Overseer of Weaving
..... Overseer of Cloth Room
..... Master Mechanic

Superintendents and Overseers

Jennings Cotton Mills,

Lumberton, N. C.

W. G. Reynolds.....Supt.
G. G. Allen.....Carder, Colored Mill
Dudley Pittman, Spinner Colored Mill
H. M. Miles, Carder-Spinner, White
Clayton Singletary...Master Mechanic

Clover Cotton Mfg. Co.,

Clover, S. C.

Thos. B. Williams.....Supt.
J. Ross Parish.....Carder No. 1
W. H. Hagans.....Carder No. 2
W. M. Barrett.....Spinner No. 1
S. J. Molhues.....Spinner No. 2
H. B. Maxwell.....Master Mechanic

Maplecroft Mills,

Liberty, S. C.

E. C. Little.....Superintendent
W. T. James.....Carder
M. D. Leslie.....Weaver
Jno. H. Hudgens.....Spinner
M. D. Leslie.....Cloth Room
B. M. Halland.....Master Mechanic

Woodside Mills,

Greenville, S. C.

M. O. Alexander.....Superintendent
W. M. Chandler.....Carder
W. R. Coggins.....Spinner
J. A. Wofford.....Weaver
W. B. Glenn.....Cloth Room
Crosby Dallas.....Warp. & Spool.

Palmetto Cotton Mills,

Palmetto, Ga.

Bob Thomas.....Superintendent
T. S. Boynton.....Carder
J. E. Boynton.....Spinner
G. D. Rodgers.....Weaver
E. G. Tonnal.....Cloth Room
R. L. Bentley.....Master Mechanic

Lockhart Mills,

Lockhart, S. C.

T. I. Barber.....Superintendent
L. H. Hallman.....Carder
J. E. Lattimore.....Spinner
T. E. Hendrix.....Weaver
K. C. McCollum.....Cloth Room
J. W. Brasington...Master Mechanic

Bamberg Cotton Mills,

Bamberg, S. C.

I. N. Dunn.....Superintendent
L. C. Eubanks.....Carder
J. A. Sanders.....Spinner
J. P. McCraw.....Weaver
H. M. Barry.....Cloth Room
L. S. McAllister.....Master Mech.

SOUTHERN TEXTILE BULLETIN

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Associate Editor

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ADVERTISING

Advertising rates furnished upon application.

Address all communications and make all drafts, checks and money orders payable to the Clark Publishing Company, Charlotte, N. C.

Entered as second class matter March 2nd, 1911; at the post office at Charlotte, N. C., under the Act of March 3d, 1879.

THURSDAY, JULY 11

Directory Data.

We are working upon the August 1st edition of **Clark's Directory of Southern Cotton Mills** and have already received the data from about ninety per cent of the mills.

We wish to make a special request of those, which have not reported, to fill in the blanks that we sent and return them at once.

Tariff Board Expires.

The Tariff Board went out of business on July 1st because of the refusal of Congress to continue the necessary appropriation. They have done their work well and have left behind them the most complete and accurate collection of cotton manufacturing costs that have ever been compiled.

While they have been subject to many attacks by those who are interested in discrediting their work, the force of all the attacks has been directed at immaterial and unimportant facts in connection with the methods of collection of data.

Crop Prospects.

Under the recent order of Congress the estimate of the Department of Agriculture relative to the cotton acreage of 1912 did not appear in June but was issued on July 3rd. This estimate placed the 1912 acreage at 34,100,000 as against 36,680,000 for last year which is a reduction of approximately 7 per cent.

The yield per acre for the 1911 crop was .44 of a bale which has only been exceeded twice within the last fifteen years. That yield was due primarily to the unusual season and to the large amount of fertilizer which was used.

Could we obtain the same yield per acre for 1912 the crop would be 15,100,000 bales which can safely be considered to be the maximum possibility of this season.

We can see no reason however, to expect as large a yield per acre as last year for we have had a very late season and on account of the low prices for cotton that have prevailed the farmers have not had

funds to buy as much fertilizer as they used in 1911.

During the past twelve years the yield per acre has varied from .33 to .46 of a bale and it is probable that the yield per acre for this season will be somewhere between these limits.

Having 34,100,000 acres planted it is interesting to study the size of the crop that would be produced on that acreage by the different yields

er acre.	
Bales	Total
Per Acre	Bales
.33	11,250,000
.34	11,590,000
.35	11,935,000
.36	12,275,000
.37	12,615,000
.38	12,960,000
.39	13,400,000
.40	13,740,000
.41	14,080,000
.42	14,420,000
.43	14,760,000
.44	15,100,000
.45	15,440,000
.46	15,785,000

We therefore see that the crop of 1912 will be somewhere between 11,250,000 and 15,785,000 with little probability of its reaching either limit.

The condition of the crop on June 25 was 80.4 per cent of a normal condition, as compared with 88.2 per cent June 25 last year and 80.7 per cent average condition for the past ten years on June 25.

The condition is therefore almost the same as the ten year average and the yield per acre for the past ten years has been less than .40 of a bale which would in accordance with the above table indicate a crop of less than 13,700,000.

Experience has shown, however, that the yield per acre or the size of the crop does not follow the condition report and only weight to be attached to the report is that it indicates that as large a yield per acre as last year can hardly be expected.

We do not wish to be considered as working a crop estimate at this season but do wish to call attention to the range of possibilities with 34,100,000 acres planted.

Chemical Tariff Bill Defeated.

The tariff bill known as the "Chemical tariff revision bill" which placed on the free list of dyestuffs which are used in coloring cotton goods and which passed the lower house of congress was killed in the Senate.

Won \$100 Prize.

Edward M. Henley, assistant superintendent of the Erwin Mills, Duke, N. C., has been awarded the \$100 first prize by the Wool and Cotton Reporter for the best practical article contributed to a contest which they ran last year.

The article by Mr. Henley was on "Warp Waste in a Cotton Mill."

Rates on Factory Waste.

A rate of 40 cents a hundred pounds on cotton factory sweepings and cotton waste from Lindale, Ga., to Paducah, Ky., has been held by the Interstate Commerce Commission to be unreasonable to the extent that it exceeded 32 cents.

The case was instituted by the Riverside Mills of Augusta, Ga., against various railroads operating in the South to obtain a determination not only of just rates, but of fair minimum weights of carload shipments.

The commission sustained the contention of the complainant in each instance, except upon the rate of \$1.89 from Augusta to Clifton, Ariz., which was found to be reasonable.

Estate of J. E. Prior.

The estate of the late J. E. Prior, former head of the J. E. Prior department of Fredrick Viator & Archelis, of New York, who died about 18 months ago, and whose will was admitted recently to probate, is appraised at about \$513,000.

Mr. Prior was largely interested in the Highland Park Mfg. Co., and other Southern mills.

Child Labor in Georgia.

An agreement has been reached, it is said, whereby cotton mill interests of Georgia will not further oppose the passage of the Alexander amendment to the child labor law. This amendment, which was set as special order for July 9, raises the age at which children may be employed in factories from 10 to 12 years to 14 years. Under the present law, passed several years ago, children under 12 years of age are prohibited from working in factories. One exception, however, is allowed in cases where a child is the sole support of a widowed or invalid mother. The Alexander amendment places the age limit at 14 years and makes no exceptions. Advocates of the bill state that the agreement effected with cotton mill representatives practically insures the passage of both the child labor measure and the bill providing for compulsory education.

PERSONAL NEWS

Chas. Biggers, of Lindale, Ga., has accepted a position at Griffin, Ga.

F. L. Salmons, of Lindale, Ga., has accepted a position at Rome, Ga.

A. E. Davis has resigned as overseer of the cloth room at the Orangeburg (S. C.) Cotton Mills.

J. W. Herring, formerly of Mobile, Ala., is now overseer of twisting and spooling at the Athens (Ga.) Mfg. Co.

W. L. Jenkins has resigned as overseer of carding at the Warren Mfg. Co., Warrenville, S. C.

W. H. Bigham has resigned as master mechanic at the Eureka Mills, Chester, S. C.

W. E. Taylor of Duke, N. C., has accepted a position as loom fixer at Rosemary, N. C.

Robert Husky, from Enoree, S. C., is now second hand in carding at the Clinton (S. C.) Mill No. 2.

W. C. Kee has been promoted from second hand to overseer of spinning at the Fidelity Mill, Charlotte, N. C.

R. L. McGee, from North Charlotte, N. C., is now fixing looms at the Erwin Mills, Duke, N. C.

C. H. Hammond has accepted the position of overseer of carding at the Fidelity Mills, Charlotte, N. C.

E. C. Fleming has been promoted from assistant to superintendent of the Kosciusko (Miss.) Mills.

J. H. Gifford is now overseer of spinning at the Louisville (Ky.) Spinning Mills.

R. S. McGill is now manager and superintendent of the Fulton Cotton Mills, Athens, Ala.

W. H. Portner, of Alabama City, has been granted a patent on a self threading shuttle.

W. E. Smith has resigned as second hand of spooling and warping at the Glenn-Lowry Mills, Whittemire, S. C.

W. H. Spratlin has resigned as superintendent of the Star Thread Mills, Athens, Ga.

A. A. Jolly has resigned as second hand in spinning at Dan River Mill No. 3, Danville, Va.

W. R. Strait has resigned as second hand in No. 3 weave room, Dan River Mills, Danville, Va.

Geo. H. Smith has resigned as overseer of carding at the Capitola Mills, Marshall, N. C.

J. M. Turk has been promoted to head book-keeper at the Coosa Mfg. Co., Piedmont, Ala.

Geo. K. Tate has resigned as superintendent of the New Century Mills, South Boston, Va.

J. P. Scott has resigned as master mechanic at the Athens (Ga.) Mfg. Co., and is now machinist at the Aldora Mill, Barnesville, Ga.

E. W. Everett has resigned as master mechanic at the Wylie Mill, Chester, S. C., and is now located at Dalton, Ga.

N. C. Martin has resigned as overseer of cloth room at Laurens, S. C., to accept a similar position at the Monaghan Mills, Greenville, S. C.

J. W. Miller of American Machine Co., has accepted the position of master mechanic at the Eureka Mills, Chester, S. C.

C. E. Rogers has resigned as overseer of carding at the Harriet Mills, Henderson, N. C., and accepted similar position at the Arista Mills, Winston-Salem, N. C.

Harvey Carpenter of the Perkins Hosiery Mills, Columbus, Ga., has accepted the position of overseer of spinning at the Meritas Mills of the same place.

W. W. Phillips has resigned as section hand in spinning at the Dan River Mills, Danville, Va., to become second hand in spinning at the Pilot Mills, Raleigh, N. C.

CARDS,
DRAWING,

COTTON
MILL MACHINERY

SPINNING
FRAMES,

MASON MACHINE WORKS

TAUNTON, MASS.

EDWIN HOWARD, Southern Agent
Charlotte, N. C.

COMBERS,
LAP MACHINES

MULES,
LOOMS.

G. D. Williams has been promoted to overseer of spinning at the Harriet Cotton Mills.

W. B. Hixon of Augusta, Ga., has accepted the position of overseer of spinning at the Enoree (S. C.) Mfg. Co.

J. T. Honeycutt, overseer of carding and spinning at the Newton (N. C.) Cotton Mills, has resigned the spinning.

J. E. Shaw has been transferred from overseer of carding at Mill No. 2, to carder and spinner at Mill No. 1 of the Clinton (S. C.) Cotton Mills.

D. J. Knot has resigned as second hand in spinning at Bon Air, Ala., to accept a similar position at Thomson, Ga.

J. W. Roberts has resigned as superintendent of the Katrine Mfg. Co., Fork Shoals, S. C., which will be idle for the remainder of this year.

F. E. Blair, of Columbus, Ga., has accepted the position of superintendent of the Star Thread Mills, Athens, Ga.

B. F. Barnes, formerly superintendent of the Fulton Bag and Cotton Mills, Atlanta, Ga., has accepted a similar position at the Echota Mills, Calhoun, Ga.

Robert Willis has resigned as overseer of weaving at the Hamburger Mills, Columbus, Ga., and is fixing Jacquard looms at the Swift Mfg. Co., of the same place.

A. H. Thatcher has resigned as head book-keeper at the Coosa Mfg. Co., Piedmont, Ala., and will be secretary-treasurer of the mercerizing plant, which the company will build at Ridgedale, Tenn.

L. B. Hines of Bessemer City, N. C., has accepted the position of overseer of cloth room at Siluria, Ala.

Will Taylor has been promoted to overseer of carding and spinning at the Jno. M. Stone Cotton Mills, Starkeville, Miss.

E. F. Anderson has been promoted from second hand to overseer of carding at the Clinton (S. C.) Mill No. 2.

Walter Robinson, of Lancaster, S. C., is now running a section in spinning in Dan River Mill No. 3, Danville, Va.

J. W. Sanders, of Rock Hill, S. C., has accepted a position as section hand in spinning at Dan River Mill No. 3, Danville, Va.

Robert P. Dempster, of Knoxville, Tenn., has accepted the position of assistant designer at the Aberfoyle Mills, Chester, Pa.

Carl T. Tourtellot of Providence, R. I., has accepted the position of assistant superintendent at Hope Mills, N. C.

H. G. Broom has resigned as second hand in weaving at Lockhart, S. C., to accept a similar position with the Dan River Mills, Danville, Va.

J. A. Campbell has resigned as overseer of spinning at Clinton (S. C.) Mill No. 1, and accepted a position with Mill No. 2 of the same company.

H. Lee Dearman has resigned as carder and spinner at the Holt-Granite Mills, Haw River, N. C., to become superintendent of one of the mills at Burlington, N. C.

OVERFLOW PERSONALS PAGE 16

The C. O. B. Machine is "An Immense Benefit to Any Mill"

VICTOR MANUFACTURING CO.
Executive Department

May 24, 1912.

Mr. J. E. Cheesman, Empire Duplex Gin Co.,
68 William St., New York City.

Dear Sir:-

Replying to yours of the 16th inst

We are more than satisfied with the way the C. O. B. Machine is cleaning and preparing the stock, and feel that this machine is an immense benefit to any mill but especially to those mills that use staple cottons.

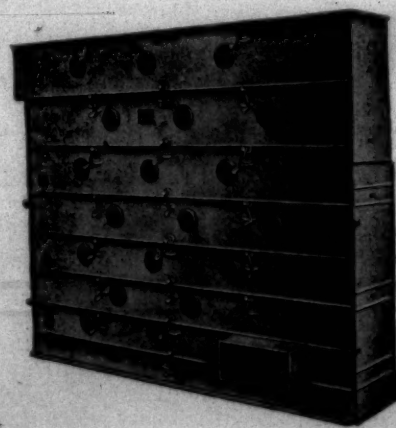
With personal regards,

Very truly yours,

DAVID JENNINGS, Vice-Pres.

MANUFACTURED BY

EMPIRE DUPLEX GIN COMPANY, 68 William St., New York



MILL NEWS ITEMS OF INTEREST

Valdosta, Ga.—The Strickland Cotton Mills will invest about \$10,000 for additional machinery.

Denison, Texas.—The Denison Cotton Mills have added 2,000 spindles and 50 looms to their equipment.

Tampa, Fla.—A mattress factory will be established here by A. R. and I. Addison, of Montgomery, Ala.

Columbus, Ga.—The Hamburger Mills have been granted a renewal of their charter for a period of twenty years.

Newberry, S. C.—The Newberry Cotton Mills of July 1st paid a semi-annual dividend of 5 per cent on its capital stock of \$500,000.

Opelika, Ala.—The Opelika Cotton Mills have installed the Kinkead Apparatus for aligning and leveling shafting.

Augusta, Ga.—The Riverside Mills are considering the investment of about \$200,000 for enlargements and improvements to their plant.

Augusta, Ga.—The Sutherland Mfg. Co. recently discarded their mill spinning and installed 144 looms which are being operated on duck and osnaburgs.

Whitmire, N. C.—The Glenn-Lowry Manufacturing company, of Whitmire, on July 1st paid the usual semi-annual dividend of 3 1-2 per cent.

Greenville, S. C.—The new weave shed being erected by the Carolina Mills, J. I. Westervelt, president-treasurer, will be equipped with the American Moistening Co.'s system of humidifiers.

Columbus, Ga.—The Georgia Mfg. Co., Columbus, Georgia, has placed their order with the American Moistening Co. for a complete humidifying equipment.

Pickens, S. C.—The Pickens Cotton Mill has declared its usual semi-annual dividend of three per cent. This company will add 6,000 spindles to their present equipment.

Lancaster, S. C.—The Lancaster Cotton Mills have declared a semi-annual dividend on its common stock of 5 per cent, and a 3 1-2 per cent dividend on its preferred stock.

Beaumont, Texas.—B. Duets Furniture Company has ordered machinery and will rebuild their mattress factory which was recently destroyed by fire.

Vass, N. C.—The Vass Cotton Mills are installing 1,440 additional spindles and card room machinery which was purchased from the Whitin Machine Works.

Greenville, S. C.—The Poe Mfg. Co. has contributed \$300 towards putting Tarvia on the road leading to their property.

Roanoke, Ala.—The W. A. Handley Manufacturing Company will build an addition, 100 feet in length, to their plant and add 65 looms to their present equipment.

Danville, Va.—The Riverside and Dan River Mills have awarded contract for 1,250 kw. 600 volt turbine outfit, 25 kilowatt 2-unit motor generator set and switchboard.

Columbus, Ga.—G. A. Stafford & Co. of New York, have placed on the market some new designs and colors in Columbus and Mitcheline quilts, the product of the Swift Manufacturing Co. of Columbus.

Fork Shoals, S. C.—Work has begun upon the dam, of the Katrine Mfg. Co., which was washed away some time ago. The mill which is idle does not expect to resume operations before January of next year.

Eufaula, Ala.—The Cowikee Mills are throwing out old picking machinery, slubbers and 8,000 spindles and replacing them with new machinery. The equipment will not be increased as it is entirely replacement work.

Rockwell, N. C.—The cotton mill here will soon be filled up with machinery, as two car loads have already arrived. A force of men are laying the foundation for a large warehouse which will be built at once at the cotton mill.

Raleigh, N. C.—The Raleigh Custom Shirt Manufacturing Company mentioned some time ago as proposed, has been incorporated by E. C. Hillyer, F. B. Arendell, C. R. Towles, and others. The capital stock is given at \$50,000.

Montgomery, Ala.—A new charter has been issued to the Montgomery Cotton Mills, the capital stock being \$100,000. The following officers have been elected: Horace Stringfellow, president, and W. B. Tanner, secretary and treasurer.

Chapel Hill, N. C.—The addition to the Durham Mills No. 4 at this place will consist of 7,500 producing spindles and 3,500 twister spindles. The mill will be operated on 60's to 80's two-ply knitting and mercerizing yarn.

Wellford, S. C.—The Tucapau Mills will add new electrical equipment to their plant which includes the following: one 900 kv-a. generator, one 15 kw. exciter and three 900 kv-a. and three 750 kv-a. transformers and switchboard. The General Electrical Company will furnish this equipment.

Fries, Va.—The Washington Mills have completed the installation of 5,000 additional spindles which were purchased from the Whitin Machine Works. They now have 54,624 spindles.

Montgomery, Ala.—The incorporation of the Montgomery Cotton Mills mentioned last week makes no change of any nature other than the incorporation of the mills which have heretofore not been a corporation.

Alta Vista, Va.—The Alta Vista Cotton Mills have produced their first yard of cloth—a piece of lawn. Just thirteen months elapsed between the time of the reorganization of the company and the time the first yard of finished goods was produced.

Longview, Tex.—The Longview Mattress Company, which was recently incorporated by M. H. Bivins and others, with a capital stock of \$120,000, has not yet elected officers. The building is completed. Additional machinery, including a boiler and engine, will be installed.

Eaton, Ga.—The Imperial Cotton Mills, recently referred to as, contemplating an increase in their equipment, will add about 700 spindles and 200 looms, which will practically double the size of their present plant. Contracts for the new machinery have been awarded.

Greensboro, Ga.—The Mary-Lelia Cotton Mills will add 6,000 spindles and 150 looms. A weave room will be built to hold both the old and new looms and the new carding and spinning will be placed in the old building. Contract for machinery will be placed at an early date.

St. Louis, Mo.—The Lowell (Mass.) Bleachery has leased a building in this city with a floor space of 55,000 square feet on one floor and will install machinery for the bleaching of textiles. It is reported that the equipment will cost \$15,000. The Lowell Company was reported some time ago as planning to establish a bleachery at St. Louis.

Hickory, N. C.—The Ivey Mill is now changing on coarse work. The mill ever since it started has been running on fine work. The numbers have been about 40 warp and 50 filling but they are now changing on 20 warp and 24 filling. It will take about 60 days to get all the work changed.

The company has been getting some large orders for cloth recently.

Atlanta, Ga.—An involuntary petition has been filed against the Crown Manufacturing Co., makers of mattresses, by the following petitioning creditors: Cotton States Belting and

Supply Co., \$3,941; Lester Book and Stationery Co., \$153, and the R. O. Campbell Co., \$88. The value of the stock and plant is placed at \$10,000. C. G. Lippold was appointed receiver under bond of \$5,000.

Gastonia, N. C.—The Armstrong Cotton Mills, which were recently organized at this place and who applied for a charter last week, have received articles of incorporation the Secretary of State. The authorized capital stock of the new company is \$200,000, of which \$51,000 has been subscribed by C. B. Armstrong, A. G. Meyers, R. G. Rankin and others.

McKinney, Texas.—The Texas Cotton Mills Company, recently reported as increasing their capital stock by \$30,000, will also issue bonds to the amount of \$75,000. It is the intention of the company to double their present equipment, which will give them approximately 10,304 spindles and 324 looms. Details of the enlargements have not yet been determined.

Columbia, S. C.—The secretary of state has issued a commission to the Palmetto Silk Hosiery company of Columbia with a capital of \$25,000. The company proposes to erect a hosiery mill in Columbia and do a general silk hose manufacturing business. The petitioners are Ralph K. Shaw and Frank Arnett of Rhode Island and Hunter A. Gibbs and W. Anderson Clarkson of Columbia.

Shelby, N. C.—The Ella Manufacturing Co., which was recently reported as planning to double their capacity, has let the contract for the addition to Slater and Henry, of Greenville, S. C. The contractors will begin work about August first and it is expected that the work will be completed in sixty days. The new building will be 80x220 feet, set parallel with the present building and connected by a cross section 32x40 feet.

Twenty-five more tenant houses will be erected. The contract for these dwellings has not yet been let. It is said that the total cost for the enlargement to the plant will be about \$100,000.

Danville, Va.—The Danville Knitting Mills have under construction a new wing to their building, measuring 95x100 feet. This new wing will be used partly as a finishing room and partly as a stock room, and it is expected that the work will be completed in three months' time.

The cost of the improvement is stated at \$12,000, but the cost of installing the machinery and equipment will bring the total cost to a higher figure.

The addition will increase the output of the mill and during the coming months the operating force of the mill will be increased about 25

to 30 per cent.

Godfrey Pettit, Jr., is drawing the plans for the new building, which will be of mill construction, three stories high and equipped throughout with a modern sprinkling system for fire protection.

Spartanburg, S. C.—It is not thought that the cotton mills in the county will close down this summer for a period of ten days or two weeks as was the case last summer and the previous summer. All of the mills are now running on full time and there is a good demand for cloth.

Last summer the cloth market was very dull and the mills in order to curtail the output gave their operatives a vacation of ten days or two weeks. The mills are not losing any money this summer, it is said, and will run throughout the entire summer without a shutdown.

Little Rock, Ark.—It is locally reported that the Board of Trade is now investigating a proposition received from mill owners in Virginia to move a knitting mill to Little Rock. The president of the company writes that it has orders on its books for more than \$250,000 worth of goods but needing 500 operatives, they can secure about 1400 where they are located. The mill is turning out but one-quarter of its capacity, and when running full time with full force, its output would be \$700,000 annually. The president states that the company has machinery to make any style of men's and boys' underwear and sweater coats.

Ridgedale, Tenn.—The mercerizing company, recently mentioned as being proposed at this place has effected permanent organization with a capital stock of not less than \$60,000 or more than \$75,000. It is probable that the officers will be elected as follows: W. Lane Verlenden, of Darby, Pa., president; Alfred H. Thatcher, Piedmont, Ala., secretary and treasurer. A plant for mercerized cotton products will be erected and the contract for the warp mercerizing machinery has already been awarded to the Butterworth Co., of Philadelphia, Pa. The architect-engineers in charge of the construction will be Lockwood, Greene & Co., of Boston, Mass.

Hendersonville, N. C.—R. P. Freeze will begin operations at the new Freeze Hosiery Mill in this city this week. Machinists are now making tests of the machinery and by the end of the week operatives will be actively engaged. For a few weeks 30 operatives will be required and the mill capacity will be 150 dozen pieces per day. M. Freeze stated recently that within a few weeks 75 operatives will be employed and the capacity of the mill will be increased to 400 dozen per day. The mill



Just in Passing

Competition is a peculiar thing. It may make enemies out of lifelong friends—if it's a political contest.

THE TURBO HUMIDIFIER

has met competition in but one way; the only way, in fact. It has delivered the goods, and where it hasn't, and I admit that there were things at first that we did not get on to, our education did not cost our customers a penny.

The great big business world is ruthless in its judgments of service rendered, and unless the service is rendered somebody loses.

Get Turbofied—and satisfied.

THE G. M. PARKS CO.
FITCHBURG, MASS.

Southern Office, No. 1 Trust Bldg., Charlotte, N. C.
B. S. COTTRELL, Manager

will run on a small scale until the operatives become experienced in the work and until preparations can be made for more extensive operations. Mr. Freeze stated that he has leased two storerooms in the park near the mill and will, in August, open a general merchandise business and make a specialty of handling wood and tanbark.

Reorganization of Parker Cotton Mills.

The mills controlled by the Parker Cotton Mill Co. have been reorganized into three corporations instead of sixteen as formerly. The companies are as follows:

Monaghan Mills, capital \$2,500,000, with 99,000 spindles and 2,426 looms, including what has been Monaghan Mills at Greenville, Seneca Cotton Mills at Seneca, Walhalla Cotton Mills, at Walhalla.

Hampton Cotton Mill Co., Columbia, S. C., capital \$7,000,000, with 274,000 spindles and 6,910 looms, including what has formerly been the Olympia, Granby, Richland and Capital City Mills at Columbia, Pine Creek Mills, Beaver Dam Mills at Elgefied and Wylie Mills at Chester.

Victor Mfg. Co., Greer, S. C., capital \$3,500,000, with 141,000 spindles and 3,289 looms, including Victor and Greer Mfg. Co. at Greer, Apalache Mills at Arlington, Wallace Mills at Jonesville and Otteray Mills at Union, S. C.

Sale of Trion Manufacturing Co.

Capt. Chas. A. Lyerly, of Chattanooga, Tenn., representing the creditors, bought in a portion of the assets of the Trion (Ga.) Manufacturing Company, at the bankruptcy sale on June 30th. The purchase price was six hundred thousand dollars.

Included in the purchase price were the mill buildings and machinery, the Inn, the tenant houses and all of the real estate owned by the company. The remainder of the assets of the Trion Co., about \$200,000 worth of personal property, will be sold under order of the court within the next few weeks.

The sale of June 30th will come before the referee for confirmation on July eighth.

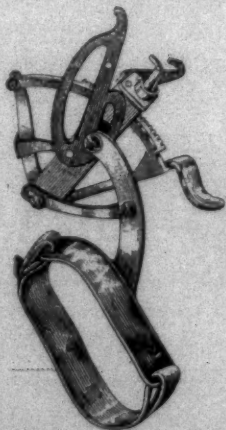
As soon as the sale is confirmed, the mills will be taken over and operated by the new company, and until that time they will continue to be operated by the trustee.

After the sale of the remainder of the assets, the assets will have been converted into cash in the hands of the trustee, for the purpose of paying expenses and a dividend to the creditors.

It is very likely that the reorganized mill will be managed by Benj. Riegle president of the Ware Shoals (S. C.) Mfg. Co. Details of reorganization will be announced at a later date.

The Byrd Knotter

Price \$20.00



Simple of Operation
Durability Guaranteed
Small Repair Cost

Byrd Manufacturing Co.
DURHAM, N. C.

AMERICAN MOISTENING COMPANY

BOSTON, MASSACHUSETTS

WILLIAM FIRTH, President

FRANK B. COMINS, Vice-Pres. & Treas.

THE ONLY PERFECT SYSTEM OF AIR MOISTENING
COMINS SECTIONAL HUMIDIFIER

JOHN HILL, Southern Representative, Third Nat. Bank Building, ATLANTA, GEORGIA

Cotton Goods Report

New York. — Although the business of the past week has been interrupted by a holiday, buyers have been in the market and shown considerable interest in covering their requirements on staple lines.

The feeling throughout the trade is that, aside from the fine goods trade, business has been very satisfactory and conditions are showing an improvement.

The business being done on the bleached goods is below normal for the present period of the year, but prices remain very firm partly due to the strength of the gray goods market, and in part to the well sold up conditions of the mill making this class of fabrics. Sellers of bleached goods expect increased orders when buyers are in town during the next two weeks.

Staple lines of cotton goods are coming in for a larger share of attention, as large distributors of these goods are gaining more confidence in current price levels being fully maintained for some time to come.

Print cloths, convertibles, and other goods suitable for the manufacturing trade and a good many well known brands of cotton goods are sold for some distance ahead and the mills are turning most of their attention to meeting their contracts as they fall due.

A shortage of production due to lack of operatives is reported from many mills but is not unusual at this season of the year.

The break caused by the holiday caused a small week of trading in the Fall River print cloth market last week. Notwithstanding the inactivity, prices held firm. As a rule, buyers did not hesitate about paying the full quoted prices and those who endeavored to obtain concessions were not successful, as manufacturers held firm all along the line.

There was in evidence a moderate demand for narrow styles, printers especially being in the market for these goods. There was only a light demand for the wide goods of all kinds.

Current quotation on cotton goods in New York

Prt clths, 28-in, std 3 15-16	—
28-in; 46x00s	3 3-4
4-yd, 80x40	6 7-8
38 1-2 in, std	5 1-8
Gray goods, 39-in,	
68x72	5 1-2
Brown drills, std	8
Sheetings, so, std 7 3-4 to 8	
3-yard	7
4-yd, 56x60	6 1-4 to 6 1-2
Denims, 9-oz.	13 1-3 to 16 1-2
Stark, 8-oz. duck	12 1-4
Hartford, 11-oz. 40-	
in. duck	14 1-2
Tickings, 8-oz.	13
Std fancy prints	5 1-4
Standard gingham	6 1-4
Fine dress ging.	7 to 9 1-4
Kid. fin. cambrics	4 1-4 to 4 1-2

Weekly Cotton Statistics.

New York, July 5.—The following statistics on the movement of cotton for the week ending Friday, July 5, were compiled by the New York cotton exchange:

WEEKLY MOVEMENT.		
	1912	1911
Port receipts	17,282	8,685
Overland to mills and Canada	4,573	2,741
Southern mill takings (estim.)	25,000	15,000
Loss of stock at interior towns	10,741	10,024

Brought into sight for week	36,114	16,402
TOTAL CROP MOVEMENT.		

Port receipts	11,753,535	8,516,715
Overland to mills and Canada	889,884	952,576
Southern mill takings (estim.)	2,605,000	2,150,000
Stock at interior excess of Sept. 1	43,325	62,758

Brought into sight for season	15,391,744	11,682,049
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Big Warehouse for Savannah.

A mammoth cotton warehouse with a capacity of at least 100,000 bales of cotton will probably be erected in Savannah within a year.

The National Warehouse Co. has decided to open a branch office in Savannah and will erect the warehouse for the purpose of storing the Sea Island cotton crop of Georgia, Florida and South Carolina. Short staple cotton will also be stored in the warehouse.

Following a two-days' conference with the officers and directors of the Union Sea Island Cotton Company T. W. Carter announced that for the present the Union Sea Island Cotton Company would co-operate with his company and that within a year the Union Sea Island Cotton Co. will probably become a part of the National Warehouse Company.

The office of the national company will be located in the office with the Sea Island Company, and the businesses of both concerns will be transacted from there. Work of winding up the business of the Union Sea Island Cotton Co. will begin at once, and there is a possibility of the company becoming a part of the larger company this season.

Declined With Thanks

Reports had come to the president of a famous Eastern college that one of the students was drinking more than was good for him. Meeting the offender on the campus one morning the head of the university stopped him and said severely:

"Young man, do you drink?"
"Well—why"—the student hesitated—"not so early in the morning, thank you, Doctor."

GRINNELL WILLIS & COMPANY

44-46 Leonard Street, New York

SELLING AGENTS

BROWN AND BLEACHED COTTON GOODS FOR HOME EXPORT MARKETS

RICHARD A. BLYTHE

(INCORPORATED)

Cotton Yarns Mercerized and Natural

ALL NUMBERS

505-506 Mariner and Merchant Building

PHILADELPHIA, PA.

THE NORTH CAROLINA

College of Agriculture and Mechanic Arts

THE STATE'S INDUSTRIAL COLLEGE

Four-year courses in Agriculture; in Civil, Electrical, and Mechanical Engineering; in Chemistry; in Cotton Manufacturing and Dyeing. Two-year courses in Mechanic Arts and in Textile Art. One-year and Two-year courses in Agriculture. These courses are both practical and scientific. Examinations for admission are held by the County Superintendent at all county seats on July 11th.

For Catalog address

THE REGISTRAR,
West Raleigh, N. C.

The Desirability of the South

as the place to manufacture cotton goods is illustrated in the increase of 67% quoted by census department. We can offer attractive situations for those desiring to enter this field.

J. A. PRIDE

General Industrial Agent, Seaboard Air Line Railway

NORFOLK, VIRGINIA.

SHAMBOW SHUTTLE COMPANY
WOONSOCKET, R. I.
PATENT HAND THREADING SHUTTLES

The Yarn Market

Philadelphia, Pa.—Trading in the yarn market was dull last week. Dealers reported that they were doing very little actual business though inquiries for future business were fair. Generally deliveries on old contracts were poor.

Prices on combed yarns are strong, but they vary according to how badly the spinner wants to sell. Some Southern spinners are reported as willing to sell coarse numbers of single frame spun cones on the basis of 24 1-2 cents for 10's, while others asked 25 1-2.

There was some demand for mercerized yarns in 50-2 to 70-2 for mercerized hosiery, but the sales did not include any large quantities. The sales ranged from a single case to 2,500 or 3,000 pounds.

Owing to the lack of demand, prices on weaving yarns were very weak. Some dealers say that they are now beginning to pile up consigned yarns. Spinners who have nearly filled old contracts are holding out for prices which they cannot obtain at present, and unless a demand unexpectedly develops within the next month, the pressure of consigned yarns will break the market and send prices as much below real values as they were above a short time ago.

There was some buyers for August deliveries during the week, but the houses making the sales were the ones who could meet the buyers' ideas of prices. Sale of 30-2 warps were made at 24 and 24 1-2 cents, 20-2 warps and skeins sold for 20 cents, 14-1 warps for 17 3-4 cents, 20-1 warps, 10 and 19 1-2 cents. These prices are less than spinners, who sell through various houses will take and it was thought in the market that the sales were placed with spinners who sell exclusively through a single house.

Southern Single Skeins

4s to 8s	17	—
10s	17	—17 1-2
12s	17	—17 1-2
14s	18	—18 1-2
16s	19	—
20s	19	—19 1-2
26s	21	—21 1-2
30s	24	—1-2

Southern Two-Ply Skeins:

8s	17	1-2-18
10s	18	—
12s	18	—18 1-2
14s	18	—18 1-2
16s	18	—19
20s	20	—20
24s	22	1-2-2
26s	22	1-2-23
30s	24	—25
30s	25	—25 1-2
40s	33	1-2-2
50s	40	—41
60s	44	—45

Carpet and Upholstery Yarn in Skeins:

8-3 hard twist	17	—17 1-2
8-4 slack	18	1-2-2
9-1 slack	18	1-2-2

Southern Single Warps:

8s	17	1-2-2
10s	18	—
12s	18	—
14s	18	—18 1-2
16s	19	—
20s	19	1-2-20
24s	21	—21 1-2
26s	22	—
30s	25	—

Southern Two-Ply Warps:

8s	18	—
10s	18	—18 1-2
12s	19	—19 1-2
14s	19	1-2-20
16s	20	—
20s	20	1-2-2
24s	22	1-2-2
26s	23	—23 1-2
30s	24	—25
36s	32	—32 1-2
40s	34	—
50s	40	1-2-41 1-2

Southern Frame Spun Yarn on Cones

8s	17	1-2-17 3-4
10s	17	1-2-18 1-4
12s	18	1-2-18 3-4
14s	18	1-2-19
16s	19	—19 1-2
18s	19	1-2-20
20s	20	1-2-2
22s	21	—
24s	22	—
26s	23	—
30s	23	1-2-2
40s	29	1-2-30

Single Skeins Carded Peeler:

20s	27	—28
24s	28	—29
26s	25	—
30s	32	—33
50s	47	—50
60s	54	—57

Two-Ply Carded Peeler in Skeins:

20s	24	1-2-2
22s	25	—
24s	25	1-2-26
26s	26	—26 1-2
30s	27	1-2-28
30s-1 t's	33	—34
36s	33	—34
40s	35	—36
50s	43	—44
60s	49	—50

Single Combed Peeler Skeins:

20s	27	—28
24s	28	—29
30s	32	—33
40s	40	—41
50s	47	—50
60s	54	—57

Two-Ply Combed Peeler Skeins:

20s	28	—28 1-2
24s	30	—31
30s	33	—34
40s	42	—45
50s	50	—54
60s	57	—60
70s	65	—69
80s	77	—82

A. M. Law & Co. F. C. Abbott & Co.

Spartanburg, S. C.

Charlotte, N. C.

BROKERS

BROKERS

Dealers in Mill Stocks and other Southern Securities

Southern Mill Stocks, Bank Stocks

N. C. State Bonds, N. C. Rail-

road Stock and Other High

Grade Securities

South Carolina and Georgia Mill Stocks.

North Carolina Mill Stocks.

	Bid	Asked		Bid	Asked
Abbeville Cot. Mills, S. C.	162	162	Arista	80	...
Aiken Mfg. Co., S. C.	90	...	Brookside	112	...
Amer. Spin. Co., S. C.	65	...	Cabarrus	130	...
Aragon Mills, S. C.	91	...	Cannon	120	150
Arcadia Mills, S. C.	100	...	Chadwick-Hoskins	95	...
Arkwright Mill, S. C.	43	48	Do. Pref.	101	...
Augusta Factory, Ga.	115	120	Clara	110	...
Avondale Mills, Ala.	110	130	Cliffside	190	...
Belton Cotton Mills, S. C.	55	61	Cora	130	...
Brandon Mills, S. C.	50	60	Efird	125	...
Brogan Mills	85	90	Erwin	120	126
Calhoun Mills, S. C.	85	90	Erwin Pref.	102	102
Capital Cot. Mills, S. C.	170	...	Gaston	90	...
Chiquola Mills, S. C.	85	90	Gibson	98	100
Clifton Mfg. Co., S. C.	98	100	Gray	125	...
Clifton Mfg. Co., S. C., p	125	...	Florence	126	...
Clinton Cot. Mills, S. C.	90	...	Highland Park	200	...
Courtenay Mfg. Co., S. C.	92 1/2	100	do. pref.	101	...
Columbus Mfg. Co., Ga.	70	...	Henrietta Mills	150	...
Cox Mfg. Co., S. C.	75	...	Kesler	125	140
D. E. Converse Co., S. C.	110	...	do. pref.	91	...
Dallas Mfg. Co., Ala.	75	...	Lowell	181	...
Darlington Mf. Co., S. C.	90	...	Lumberton	251	...
Drayton Mills, S. C.	106	...	Mooresville	142	150
Eagle & Phenix M. Ga.	165	...	Modena	118	126
Easley Cot. Mills, S. C.	25	...	Patterson	155	161
Enoree Mfg. Co., S. C.	100	...	Roanoke	96	...
Enoree Mfg. Co., S. C., pf	65	70	Statesville Cot. Mill	120	...
Enterprise Mfg. Co., Ga.	70	...	Trenton	110	...
Fairfield Cot. Mills, S. C.	72	...	Tuscarora	20	30
Gaffney Mfg. Co., S. C.	65	...	Washington	100	...
Gainesville C. M., Ga.	141	...	do. pref.	100	...
Glenwood Mills, S. C.	101	...	Williamson	110	115
Glenn-Lowry Mfg. Co., S. C.	86	...	Wiscasset	110	115
Glenn-Lowry Mfg. Co., S. C., pfd.	80	...	Woodlawn	...	...
Gluck Mills, S. C.	...	...	
Granby C. Mills, S. C.	...	...	Pacolet Mfg. Co., S. C.	75	...
Granby C. M., S. C., pfd	...	...	Pacolet Mfg. Co., pfd.	100&int	...
Graniteville Mfg. Co., S. C.	...	...	Pelzer Mfg. Co., S. C.	135	...
Greenwood C. M., S. C.	57	...	Parker Cotton Mills Co., preferred	62	65
Grendel Mills, S. C.	100	...	Parker Cotton Mills Co., common	20	22 1/2
Hamrick Mills, S. C.	102	...	Pickens C. Mills, S. C.	94	...
Hartsville C. M., S. C.	170	...	Parker Cotton Mills Co., guaranteed	100	100&int
Inman Mills, S. C.	170	...	Piedmont Mfg. Co., S. C.	144	160
Inman Mills, S. C., pfd.	100	...	Poe, F. W. Mfg. Co., S. C.	105	115
Jackson Mills, S. C.	95	...	Richland C. Mills, S. C., pfd.	...	...
King, Jno. P. Mfg. Co., Ga.	85	...	Riverside Mills, S. C.	25	...
Lancaster C. M., S. C.	130	...	Roanoke Mills, N. C.	140	160
Lancaster C. M., S. C., pd	98	...	Saxon Mills, S. C.	120	...
Langley Mfg. Co., S. C.	75	...	Sibley Mfg. Co., Ga.	62	64
Laurens Cot. Mills, S. C.	120	...	Spartan Mills, S. C.	110	...
Limestone C. Mills, S. C.	150	...	Toxaway Mills, S. C.	72	...
Lockhart Mills, S. C.	70	...	Tucapau Mills, S. C.	20	...
Loray Mills, N. C., com.	10	...	Union-Buttalo Mill, S. C.	...	...
Loray Mills, N. C. 1st p	95	...	Union-Buttalo M., S. C. 1st preferred	50	55
Marlboro Mills, S. C.	60	75	Union-Buttalo M., S. C. 2nd preferred	10	...
Mills Mfg. Co., S. C.	110	...	Victor Mfg. Co., S. C.	...	...
Mollobon Mfg. Co., S. C.	105	...	Ware Shoals	70	80
Monarch C. Mills, S. C.	110	...	Warren Mfg. Co., S. C.	85	...
Monaghan Mills, S. C.	...	...	Warren Mfg. Co., pfd.	100	...
Newberry C. Mills, S. C.	125	140	Watts Mills, S. C.	70	...
Ninety Six Mills, S. C.	135	140	Whitney Mfg. Co., S. C.	119	...
Norris C. Mills, S. C.	105	115	Wiscasset C. Mills, N. C.	...	...
Olympia, M., S. C., 1st p	...	...	Woodside C. Mills, S. C.	...	...
Orangeburg Mfg. Co., S. C., pfd.	90	...	Woodruff C. Mills, S. C.	100	...
Orr Cot. Mills, S. C.	91	...			
Oltaray Mills, S. C.	100	...			
Oconee Mills, S. C., com.	100	...			
Oconee Mills, S. C., pfd	100&int	...			

Personal Items

H. D. Agnew is manager and Supt. of the Canebrake Cotton Mills, Ellawhite, Ala.

A. O. Norris has resigned as overseer of carding at the Minneola Mills, Gibsonville, N. C.

Austin Waters has been promoted from second hand to overseer of spinning at the Hope Mills, N. C.

J. S. Lockwood has been promoted from second hand to overseer carding at Hope Mills, N. C.

Gus Fowler has resigned as overseer of weaving at Highland Park Mill No. 3, Charlotte, N. C.

H. J. Forsyth has resigned as Supt. of the Avondale Mills, Birmingham, Ala.

Alex. Davies has accepted the position of Supt. of the Avondale Mills, Birmingham, Ala.

H. B. Crouch has been promoted to second hand in No. 1 card room at Dan River Mills, Danville, Va.

Sam Hudson has resigned as second hand in No. 1 card room of Dan River Mills, Danville, Va.

E. N. Whitfield of New Holland, Ga., has accepted a position with the Dan River Mills, Danville, Va.

W. W. Ware of Rome, Ga., has accepted the position of overseer of spinning at the Edenton (N. C.) Cotton Mills.

W. B. Pratt Changes Position.

W. B. Pratt, who has for the past eight years been with W. H. Bigelow the well-known card clothing agent of Charlotte, has resigned his position to accept one with Montgomery & Crawford of Spartanburg, S. C. Mr. Pratt is one of the most popular men who has traveled this section and we wish him much success in his new work.

Welfare Work at Duke, N. C.

The Erwin Cotton Mills Co. is erecting a new lyceum building to be used for entertainments, moving pictures, a skating rink and other amusements, for the recreation of the mill operatives. It is contemplated to give the operatives high-class entertainment at minimum cost and this to protect them from the influence of undesirable shows.

Government to Spin and Weave.

The Department of Agriculture at Washington, D. C., is preparing to spin and weave cotton in a scientific way. The work will be in the nature of an experiment.

Spindles and looms will be installed by the department in a large new building now being erected on Fourteenth street where the work will take place.

All the different cotton tests of the department will also be made in that building.

Fred White's Father Dead.

Fred H. White, Southern representative of the Stafford Company, has the sympathy of his many friends in the loss of his father, Mr. Frank White, which occurred at Saco, Me., on June 30th.

Accused of Ugly Crime.

Two men named Miller and Baker, operatives at the Manchester Mills, Rock Hill, S. C., and a woman named Cranford were arrested last week on a very ugly charge and given a preliminary hearing in the Magistrate's Court.

Miller, it is charged, inveigled four young girls, to the Cranford woman's house and there had Baker, who does some photographing, make a number of pictures in the nude, claiming that they were for a moving picture show. The girls are 8 to 17 years of age.

Miller was bound over to court. Baker was released under \$200 bond and the woman on her recognizance.

Fires Without Damage.

Among the numerous cotton mill fires which are put out so promptly by automatic sprinklers as to do away with damage and claim for insurance, two recent ones in Green-

ville, S. C., and Greenwood, S. C., might be mentioned. The former occurred in the dust room of a spinning company and was put out so promptly by four Grinnell automatic sprinklers and with such slight loss as to occasion no claim for damages. A second fire occurred in a picker trunk and was immediately put out by the opening of one sprinkler head.

Million Yards Cotton Duck For Automobile Tires.

One million yards of high-grade duck, to be made from Sea Island and Egyptian cotton, has recently been sold by a Georgia cotton mill to a manufacturer of automobile tires. The quality of this material is of the highest grade, used only in the larger tires, the lower grade of goods being available for the smaller tires. One million yards of cotton duck, one yard wide, is a pretty big order to go from one mill to one tire manufacturer. It illustrates, however, the ever-broadening market for cotton and the reason why a big cotton crop has been so promptly absorbed. Every year sees new uses for the South's cotton. Not only is it being used in the manufacture of tires; it is likewise used in the manufacture of automobile tops; and the wider the use of automobiles the greater will be the demand for cotton.—Manufacturers' Record.

Big Picnic At Tallassee.

The Tallassee Falls Manufacturing Company, Tallassee, Ala., which operates two large cotton mills at that place, employing something over a thousand people, gave an elaborate picnic to its employees in celebration of the Fourth of July, and as an expression of its appreciation of the valuable services of the loyal employees.

The day was spent in a most happy manner by the three thousand people who participated in the amusements of the day, which included a number of outside parties and farmers, everybody having been invited to take part.

A clay pigeon shoot was held in the early morning and numerous stunts were pulled off during the day, including the old men's race, barrel race, guinea race, catching the greasy pig, money scramble for the boys, climbing the greasy pole, and various other events.

A string band was on the ground all day, and those who wished to dance were allowed that privilege.

In the afternoon two baseball games were played between Tallassee and a team from Montgomery, Tallassee taking both games.

After the picnic was over, a lot of food remain untouched, which was distributed among the employees of the company.

This picnic was said to be the most successful event for Tallassee in many years.

When the Reverend John McNeil

was holding revival services at Cardiff a young man one night, thinking to perplex the preacher, sent up a note to the platform with the request that the following question might be publicly answered:

"Dear Mr. McNeil—If you are seeking to enlighten young men kindly tell me who was Cain's wife."

Mr. McNeil read the note, and then, amid breathless silence, said:

"I love young men—inquirers for truth especially—and should like to give this young man a word of advice. It is this: Don't lose your soul's salvation looking after other people's wives." Ex.

This Was a Fright.

"Stop a minute!" shouted one man to another. "Answer this: 'Why is a woman like an umbrella?'"

"Because she often has to be shut up—"

"Wrong."

"Because she stands in the hall—"

"Nothing like it."

"Because nobody ever gets the right kind of—"

"Absolutely off it!"

"Because she fades with age, eh?"

"Don't be silly. Can't you guess?"

"Oh—because she's a good thing to have—"

"Hang it! I've missed my train. A woman is not like an umbrella. Get out of my way—I—"

"Give it up? A woman is like an umbrella because she's accustomed to reign. See? Imagine not being able to answer such a simple—"

Bang! Thud! Biff!—Ex.

Every Raw Hide Picker

We make bears our Trade Mark.

We have so much confidence in our raw hide loom pickers that we stamp our trade-mark in the hide of each picker so that it can be easily distinguished even when worn out. We spare no effort to improve the quality of our product and intend that our trade-mark on a raw hide loom picker shall be the symbol of the best it is possible to produce.

You risk nothing in using Garland Pickers.

Garland Mfg. Co., Saco, Maine



Bradford Soluble Grease



UNEXCELLED as a softening agent in the finishing of Cotton Fabric. Used extensively both by finishers of colored goods and bleachers in finish of white fabrics. Any degree of "softness" may be obtained by the proper use of this article. A neutral preparation. Write for recipe for finishing.

ARABOL MANUFACTURING CO.

100 William Street, New York

CAMERON MacRAE Southern Sales Agent CHARLOTTE, N. C.

Want Department

Want Advertisements.

If you are needing men for any position or have second hand machinery, etc., to sell, the want columns of the **Southern Textile Bulletin** afford a good medium for advertising the fact.

Advertisements placed with us reach all the mills.

Employment Bureau.

The Employment Bureau is a feature of the **Southern Textile Bulletin** and we have better facilities for placing men in Southern mills than any other journal.

The cost of joining our employment bureau is only \$1.00 and there is no other cost unless a position is secured, in which case a reasonable fee is charged.

We do not guarantee to place every man who joins our employment bureau, but we do give them the best service of any employment bureau connected with the Southern textile industry.

Weavers Wanted.

Wanted at once denim weavers. Good prices and steady work. None but first-class weavers need apply. Hamilton Carhartt Cotton Mill, Rock Hill, S. C.

Operatives Wanted.

Want at once Cotton Mill help of all kind, especially Frame hands. New mill, just starting up. Write or apply in person to Mandeville Mills, Carrollton, Ga.

Weavers Wanted.

WANT 15 or 20 good Draper weavers. Good prices paid to good weavers. Apply in person or correspond with R. A. Sims, overseer of weaving, or A. T. Browne, Supt., Warren Mfg. Co., Warrenville, S. C.

BEAMERS WANTED.

WANTED AT ONCE, FOR NIGHT WORK, 10 SHORT CHAIN BEAMERS, PAY \$2.40 PER NIGHT. NONE BUT FIRST CLASS BEAMERS NEED APPLY. ADDRESS, A. C. WEST, OVERSEER BEAMING, LOCKE MILLS, CONCORD, N. C.

WANT position as superintendent of small mill, not over 8,000 spindle on hosiery yarn, or overseer of large card room. Good references. Address No. 164.

Weavers and Fixers Wanted.

WANTED—At once, a few good Draper and Crompton Loom Weavers on Chambrays and Gingham. Good weavers earn with us from \$8.00 to \$12.00 per week. Can also use for our new loom addition some first class Draper and Safford Loom Fixers. Write or apply in person at once to DAN RIVER COTTON MILLS, Danville, Va.

Many Answers.

We have been kept busy forwarding answers to YZZ and No. 1018 whose advertisements appear two weeks ago. There has been a flood of answers but all have been forwarded promptly. **Southern Textile Bulletin.**

WANT position as overseer of spinning, twisting, or in winding room 18 years experience in spinning and twisting. Familiar with spooling, reeling and winding. Will not consider less than \$2.00 per day. Age 32. Married. Address No. 165.

WANT position as overseer of carding. Have had 21 years experience as overseer of carding in some of the best mills in the South. Can furnish the best of references. Address No. 167.

WANT position as mechanic or electrician. Have had practical experience in machine shop and electrical work. Can furnish good references. Would not consider less than \$2 per day. Address No. 168.

WANT position as overseer of spinning. Have had long experience in some of the best mills of the South. Now employed. Will not accept less than \$3.50. Address No. 169.

WANT position as overseer of carding. 36 years old, married and can furnish best of references. Now employed in large mill, but wish to change. Address No. 170.

WANT position as superintendent. Now employed in that capacity, but wish to change. Am experienced and well recommended. Address No. 171.

WANT position as overseer of weaving. Experienced on duck, drills, sheetings and osnaburgs. Now employed, but can change on short notice. Will not accept less than \$3.50. Address No. 172.

WANT position as superintendent or overseer of carding and spinning at not less than \$4.00. Now employed in a large mill, but wish to change. Good references. Address No. 174.

WANT position as overseer of carding. 35 years old, married. Good habits, good references and long experience. Now employed but want larger position. Competent for any size room. Address No. 173.

WANT position as overseer of carding in large mill or carder and spinner in small mill. Can give best of references and am strictly sober, with 14 years experience as carder. Address No. 175.

WANT position as superintendent of white or colored goods mill in N. C., S. C., or Ga. Long experience as superintendent and fine references. Also expert designer. Address No. 176.

WANT position as overseer of carding. Have had 24 years' experience in cotton mill work and am good manager of help. 32 years old. Married. Good recommendations. Now employed but can change on short notice. Address No. 177.

WANT position as overseer of carding. Now employed but want larger room. Long experience and can furnish best of references. Address No. 178.

WANT position as superintendent or overseer of spinning in large mill. Now employed but prefer to change. Long experience and good references. Address No. 179.

WANTED position as overseer of weaving in a medium or small size room. Am of good character and strictly temperate. Experienced on Draper or plain looms. Am now employed, but want to change. Address No. 180.

WANT position as superintendent or manager. Now employed but wish to change. Can furnish good references, both as to character and ability. No. 181.

WANT position as overseer of carding. 17 years in card room. 7 years as overseer. Can furnish good references. Address No. 182.

WANT position as superintendent of yarn mill or carder and spinner. 20 years experience as overseer and superintendent. Good references. Address No. 183.

WANT position as overseer of spinning. Eight years experience as overseer. Age 31. Married. Good references. Address No. 184.

WANT position as overseer of weaving. Married. Age 36. 12 years experience in mill. 4 years as overseer and second hand. Sober and good manager of help. I look after both quality and cost. Now employed. Good references. Address No. 185.

PATENTS

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Send your business direct to Washington. Saves time and insure better service.

*Personal Attention Guaranteed
30 Years Active Service*

SIGGERS & SIGGERS
Patent Lawyers

Suite 34 N. U. Bldg. Washington, D. C.

WANT position as superintendent. Had 7 years experience as superintendent and overseer in good mills. Age 33. Married. Good references. No. 186.

WANT position as overseer of weaving and cloth room. Experienced on plain and fancy white and colored goods. Now employed but want larger job. Good references will be furnished. Address No. 187.

WANT position as overseer of cloth room. Have had wide experience and am giving satisfaction on present job but want larger position. Age 32. Married. Good references. Address No. 188.

WANT position as carder and spinner on night or day run. Have filled present position as carder and spinner for five years. Can furnish good references and get quality and quantity. Address No. 189.

WANT position as overseer of carding. Have had long experience and am now employed, but prefer to change. Can furnish good references both for ability and character. Address No. 190.

WANT position as overseer of spinning. Have had long experience and can give satisfaction. Can furnish satisfactory references. Address No. 191.

WANT position as engineer and machinist. 17 years experience and best of references. Have family of mill help. Address No. 192.

WANT position as superintendent of yarn or plain weaving mill. Now employed, but wish to change. Age 36. Married. Good references as to character and ability. Address No. 193.

WANT position as overseer of weaving. Have had long experience on both white and colored goods and can furnish first-class references. Address No. 194.

WANT position as overseer of spinning in large mill or carder and spinner in small mill. Experienced on both white and colored work and both weaving and hosiery yarns. Age 3. Married. Good references. Address No. 195.

Willows For Cotton and Cotton Waste.

(Continued from Page 8)

being driven from B by means of pulleys and gearing. The shaft N actuates the timing motion and the shaft B drives at a constant speed the motions which have been timed. The speed of N is very much slower than the speed of B, but it does not communicate its motion direct to any part; on the contrary, it drives the shaft M by means of cone-step pulleys which allow a very wide range of speeds. As there is very little power to be transmitted, for the purpose of timing, the strap need only be very narrow and the individual steps may be very small, so that the cones do not take up so much room as might be expected. On the shaft of the cones-step pulley M is fixed a cam J which gives a to-and-fro movement to the lever H by means of the two arms K and L, the arm K being also kept in contact with the cam by means of a spring; but this spring is simply a safety arrangement of the type which we find so often in the self-acting mule. It is clear now that

by means of the segment D which now comes into contact with the wheel E. The wheel E is connected to the feed tray F in such a way that the tray can be sufficiently turned round to allow the whole of the material in the tray to be properly fed into the machine. The front part of the willow grid is fastened to the inside of the tray so as to prevent any material from falling out, and also to feed the material so gradually that the grid is not damaged through any lumps which come suddenly into the machine. The segment D is just long enough to turn the feed tray slowly about one quarter of a revolution. After that the wheel E is released, and the feed tray and grid close again slowly by a mechanism which is of less interest, and which will be understood by a mere reference to the machine. When these movements are completed, then the wheel A goes on turning until the lug G is near the lever H. The lever H has then returned to its original position, and A is no more in contact with wheel B. The wheel A then turns a little farther owing to its own overweight

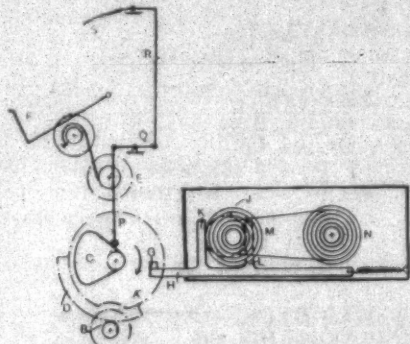


Fig. 4.

for each revolution of the cam J the lever H makes one to-and-fro movement which may be utilized for the purpose of timing. Every revolution of the shaft M would therefore be utilized for one complete round of the various motions required to clean one load of material. If we know the time taken for one revolution of the shaft M, we can easily calculate also the number of feeds per hour, and this multiplied by the weight of material which is cleaned each time gives us the production per hour.

On the same shaft as wheel A are fastened the cam C, and also the segment D, and as wheel A continues to revolve, the cam C lifts the lever P, which through the lever connection Q and R also lifts the door S on the top of the cylinder casing. When this delivery door is raised, then the willowed material in the machine will be allowed to escape to the outside. It is "baffled" against the hood over the delivery box, and falls on to the delivery lattice running across the front of the machine, which delivers it on to the floor. After a short time the cam has turned so far as to allow the lever P to be lowered again, and the delivery door closes gradually at the same rate. As soon as the door is closed and the levers are completely lowered it is essential that the new material be fed so as to reduce as much as possible the unproductive time of the machine. This is done

on the side of the lug G (as we have explained above), but it is held in position by the lever H until the complete revolution of the cam M is completed again, when a fresh circle of movements begins in the same way as described above.

To prevent any unauthorized person meddling with the timing arrangements, the cones are enclosed in a box as shown in the illustration. This box may be locked, and the key should remain in the hands of the overlooker. It is then impossible for the operative to influence in any way the timing arrangements, because the lever H is controlled on both sides by the cam, by the arm K, as well as by the arm L.

Although this motion is rather simple as far as such motions generally are concerned, it would appear that a simplification might easily be made, and the writer has therefore prepared a sketch, shown at Fig. 5, which dispenses with certain levers and the segment D shown in Fig. 4, and also with the cam C. The position of this modified motion would also come nearer to the centre of the frame side, thus doing away with the congestion of lever work at the outside edge, where the mechanism is much more exposed to damage. In this mechanism the timing-box would be the same as in Fig. 4, but it might be considered whether it would not be advisable to introduce narrow grooves in the cone step pulleys to replace the parallel

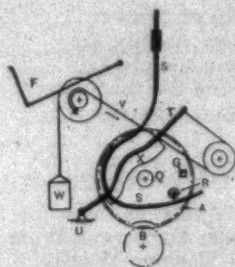


Fig. 5.

HIGH GRADE MILL BRUSHES



Special Brushes Made to Order

All Kinds of Brushes Repaired

D. D. FELTON BRUSH CO.
ATLANTA, GA.

steps. By this means a round leather rope might be made use of, permitting a further reduction in the width of the timing-box. Other simplifications might be possible in this mechanism, but we shall restrict ourselves to the lever work itself. Of this, only the wheel A and the lug G are taken over from the mechanism shown in Fig. 4. In Fig 5 the speed wheel A is marked Q, and it forms on the outside surface a plain polished plate in which is fixed a stud R with an anti-friction bowl to prevent excessive wear of the surfaces on which the stud is intended to slide. The stud R is fixed in such a way that the release of the leg G just allows the wheel A to engage freely with B. As soon as the positive driving of the plate Q begins, the stud R comes into contact with the lever S, which is depressed, thus raising the delivery door at the top of the machine to allow the willowed material to fall on the delivery lattice. The bottom part of the lever S is shaped in such a way that the delivery door is closed as gradually as it has been opened. About half-way down the lever S should be supported in a kind of movable fork so as to fix its position.

As soon as the bowl R has left the lever S and the delivery door at the top of the machine is closed, the bowl R comes into contact with the lever T, which is fixed on the frame side at U. This lever T, on being pressed to the left, will draw the chain V in the direction of the arrow, thus raising the balance weight W, and at the same time actuating the feed tray F. It will be seen that the shape of the lever T may be easily adapted to any speed of turning the feed tray, or the amount of time during which it is desired to keep the feed tray in feeding position, and the time of returning it into the position of rest, may also be easily regulated by the same means. The lever T might even be partly developed into a plate as indicated in Fig 5 by X. On this plate may be fastened, say, three pieces which might be easily adjusted to the requirements, so that the three motions might be easily regulated according to the requirements—i. e. quick or slow turning of the feed tray, long or short time of feeding (the longer time of feeding giving the advantage of less strain on the grids), and slow or quick return of the feed tray into the position of rest as shown in the sketch. These are, of course, only the rough outlines of the proposal, and it would remain to be developed. At any rate, it would appear to be a simplification.

Another form of the willow is the cotton-opening type (Oldham willow), which is often used for very

dirty cottons, and is admirably suited to replace the Crighton opener for very dirty Indian cotton, and even for dirty American cotton. In this machine we have the beater up-stroke as in the Buckeye opener, and the same advantages are derived in both cases. The feed lattice of this machine is driven intermittently at a fixed speed. The grid is in three sections, the front section containing about forty-eight hardened and tempered steel bars per foot, the back section being somewhat coarser, while the bottom section is the coarsest. The cylinder has four rows of teeth, which work against three rows of teeth in the cylinder cover. The production of this machine when treating Indian cotton is about 25,000 lbs. per week, according to the quality of the material. It should be noted that the feeding and delivery lattices are driven at a uniform speed, so that the time occupied in the feed and discharge is always the same. The intermittent motion of the feed rollers can be adjusted in a few seconds, so that the cotton can be left in the machine any desired length of time.

The curling willow for mill puff is generally similar to the Oldham willow, with feed and delivery lattice. It is used chiefly for treating the scutcher fly from the dust chamber, and the fly from other willows. In this machine the teeth are much shorter than in the ordinary willow, and they are set so near to each other as almost to touch. This near setting has the effect of curling the fibres up into small curls, from which the machine has taken its name to "curling willow." No grids at all are used in this machine, there being only a kind of gauze netting of 12 inch width near the feed end. This gauze netting is made of wire, and its only function is to allow the fan to draw off the dust created in the machine. As this machine has the beater up-stroke, the gauze netting is passed by the cylinder near the end of the stroke, thus preventing the dust from escaping.

A willow is also sometimes used for preparing of bottoms for the hard waste breaker. In that case the machine is made specially strong, with a cylinder protected all round by angle-iron edges. The teeth have steel shanks and double nuts, the lags for taking the teeth being strengthened by strong plates. The material has to be taken out by hand, for which purpose the machine has to be stopped, the opened material being taken in a loose state from the grid. Then new material is placed on the grid, the grid is closed up against the cylinder, and the machine is started again.

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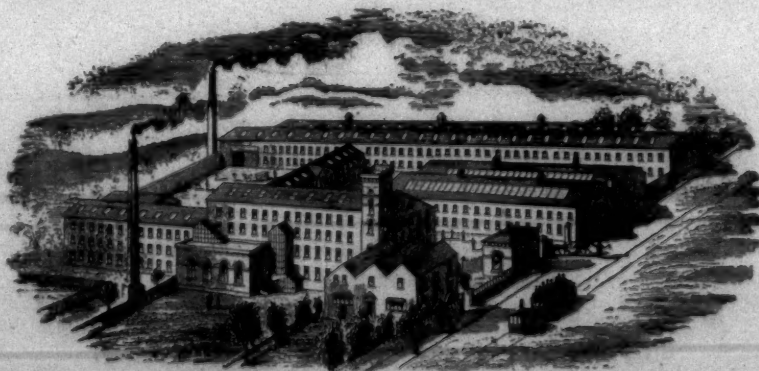
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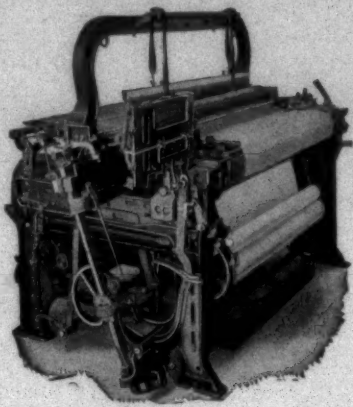
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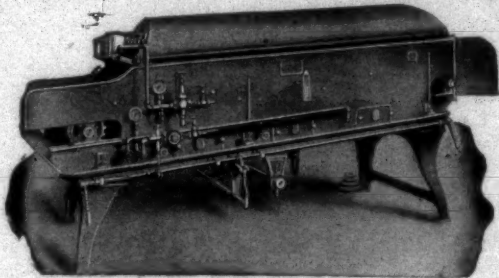
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